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BULBS FOR POTS

AND SPRING PLANTING IN THE GARDEN



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U. S. Department of Agriculture

A CATALOG OF THE BULBS AND PLANTS OF THE AMARYLLIS, IRIS,
ORCHID, GESNERIA AND OTHER PLANT FAMILIES

Many Reduced Prices. New Items Listed. Complete Culture Directions.
A Personal Letter, — to You.

SPRING 1952



CECIL HOUDYSHELE

1412 Third St.

La Verne, Calif.

Return Postage Guaranteed
If not interested, please
refuse delivery.

Sec. 34.66, P. L. & R.

A PERSONAL LETTER — TO YOU

Dear Floral Friends:

I planned to write a two-page introductory letter for this catalog since so many have expressed their interest in them. But new listings and culture advice vetoed this plan.

I do wish a lot of "Fun for you, in '52." Garden fun. May nothing you plant, from us or from anyone disappoint you.

Please note that where possible we are reducing prices. I regret that books and supplies are still climbing and you should lay in a supply for they will go higher.

We have longer lists of African Violets and Achimenes; Episcias and other Gloxinia relatives; new Gladiolus; a short list of Caladiums which we know we can deliver to early orders. These cost us much more this year and you must pay a little more.

May your keynote in '52 be "activity." Activity is life and health, mentally and physically. Inactivity is death. Physical growth is completed long before old age but mental growth needs never cease. One can learn at any age. But the inactive muscle or brain becomes useless and feeble. Old age does not make one wise. Experience does. Experience results from activity. An active life, with good habits, in youth, maturity and old age is a long life. For happiness, make it also a useful life.

If we have your confidence, send us your orders and recommend us to your friends.

Sincerely,

Cecil Houdyshel

P. S. We recommend that you buy copies of Flower Grower and Popular Gardening at your newsstand. You will then want to subscribe for both.

TERMS AND INSTRUCTIONS FOR ORDERING

The prices in this catalog cancel all former quotations.

California Customers must add 3% **Sales Tax**.

Remit by check or M. O. If stamps are sent, send \$1.05 for \$1.00. We do not carry accounts. Remit the full amount of your order in advance.

C.O.D. We do not ship bulbs C.O.D.

Postage prepaid on orders of \$1.00 or over. Under \$1.00, add 15c extra.

Insurance and Special Handling. Please note changes in rates. **Insurance** up to \$5.00 value costs 5c. \$5.00 to \$10.00 costs 10c. \$10.00 to \$25.00 costs 15c. **Special Handling** gives your package the same handling as First Class mail and hastens delivery. More safe. Up to 2 lbs. costs 15c. 2 lbs. to 10 lbs. costs 20c for each package.

Special Delivery of packages costs you 35c for 2 lbs. or less. 2 to 10 lbs. costs 45c. Over 10 lbs. costs 60c. This hastens transportation and delivery of your package as it will also be given the same service as Special Handling without an extra fee. Most post-offices require that you sign for the package. Thus it is not left outside to freeze.

Insurance, Special Handling and Special Delivery are for your protection. Please remit the amount required if you want this protection.

Express is much the safest transportation. Express cars are heated in winter but mail cars are not. Express also handles more carefully and assumes more responsibility for delivery in good order. But it costs more and we ship that way only collect. We add extra bulbs to approximate cost of postage saved to us.

Time of delivery. Most bulbs and plants are ready for delivery now, excepting plants that become dormant only a short time in the spring. We deliver by parcel post to the north as soon as safe. If in a hurry, you should instruct us to send by express, f.o.b. This is safe at any time, usually, but if frozen in transit place a claim with your own agent and you will recover your loss. Arrange with your agent for prompt delivery to avoid storage over night or a long trip in a cold truck.

Prices given are usually for one bulb. A dozen costs 10 times the price of one; 6 are sold at dozen rate; 100 cost 70 times the cost of one or 7 times the cost of one doz.; 50 are sold for the price of 4 doz., not at 100 rate, unless otherwise specified. Quantity rates

apply to one variety only and all in one bag. If you order less than six of a kind at the dozen rate we send only the amount paid for at single rate and do not write a letter of explanation.

Order Blanks. Our mailing permit does not allow us to include them loose. Two pages of catalog would be required. Thus fewer listings and less culture advice could be offered. Make your own, similar to usual printed forms. On one line state in this order: quantity ordered. Name of item but not extended description. Total cost. Thus, 3 Amaryllis, Select Strains, assorted colors—\$2.50. Use a separate line for each item and do not write the order into a letter form. If a letter is on a separate page be sure both are signed, plainly, and address given. Don't expect us to get name from check or envelope. They are at once separated.

Wholesale. We give no discounts from this catalog. We have no wholesale catalog or price lists, but on many items we are able to quote, if dealers will send a list of quantities and items wanted.

Foreign orders. Our prices include prepaid delivery as far as our 8th postal zone. We can usually prepay to Mexico or Canada. It is best to include some extra on export orders. If too much, we add extra bulbs. The 100 rate prices do not apply on export orders unless customer pays transportation. Air mail is often advisable for export orders but expensive.

Canadian Customers. Apply to Sec. of Destructive Insect and Pest Act, Advisory Board, Ottawa, Ont. (or ask your P.M.) for Permit and mailing label and send these with your order.

Many **Latin American Countries** now have certain restrictions on importations. Usually it is only necessary to send us an official permit. Your postmaster can supply all information or tell you where to get it. Be sure to comply fully as we are not permitted to ship your order unless we comply with your law.

Errors. We make them but correct them, if notified at once.

Partial Shipments. If everything is not included in first shipment a slip so stating is enclosed. When final shipment is made, another slip so states. Check them with order and if short, notify us at once.

Guarantee. Our bulbs are true to name and healthy, but we do not guarantee results since we do not control the conditions under which they are grown. If, in your opinion, our bulbs are not up to our specifications, notify us at once. If you are not then satisfied with our explanation, they may be returned. No refund will be made if planted unless circumstances indicate bulbs were at fault.

Culture directions are in this catalog, hence none are sent with bulbs.

Catalogs. **Spring Catalog**, Jan. 15. **Fall Catalog**, Aug. 15. Names are dropped from our mailing list if you do not buy for two years. If not interested, please ask P.M. to mark this catalog "refused" and return to us.

Catalogs are now expensive and we charge 10c for first one sent. This amount may be deducted from your first order of \$2.00 or more. After receiving two catalogs, if your orders do not amount to at least \$2.00 your name will be dropped.

Many ask if California bulbs do well in the east and if we can ship as far as Indiana. We ship to every state and to every continent and annually sell at least 50,000 to eastern dealers.

GENERAL CULTURAL DIRECTIONS

Rich, sandy loam is the best soil. Only a few, like Bearded Iris, prefer heavy soil. A very few, like Gloriosas, must have sandy soil.

All soils require the addition of much humus. Compost all garbage, weeds, leaves, cut branches and manures. When rotted, add to soil and thoroly mix.

Fertilizers. We recommend only animal manures, compost and commercial fertilizers that are of organic origin such as Spoonit and others listed in this catalog for use on potted bulbs. In the outside garden fresh manure can be used on most plants, that are growing vigorously, as a very light mulch, but after flowering. Too much fertilizer before flowering time may almost or wholly stop the flowers. When the growth of a plant becomes

abnormally rapid it is unlikely to flower or produce fruit. Your over-fertilized peach tree is likely to produce no fruit.

Do not fertilize a plant in dry soil, or use any fertilizer (unless thoroly rotted in a compost heap) in the soil before planting bulbs, seeds or plants. Water lawns, trees, and plants well the day before applying fertilizer and again a few days after application. Do not fertilize a sick plant in order to make it well. You are more likely to make it worse or even kill it. Small plants and seedlings should not have too much either. Lush, rapid growth may be weak and "flabby." Sturdy growth with firm structure is better. Chemical fertilizers are like "patent" medicines. They are stimulating but often the final result is bad. The physical structure of soils is the most important thing. A well drained, friable soil is the best. Sand and humus can be added in sufficient quantities at least in flower beds and the humus can be added in fields by growing cover crops. For humus, add rotted manure, composted weeds, grasses and leaves, leaf mould or peat. It is seldom necessary to add any but organic materials to soils.

After blooming, many neglect their bulbs. As a result the bulbs do not flower the following year. For success one must continue to give good culture. This is the time to fertilize, irrigate and cultivate frequently, until yellowing foliage indicates the bulb is becoming dormant. During the growth period next year's flower buds are formed.

Depth of planting and distance apart often cause too much concern. Bulbs usually have sufficient adaptability to do well under widely varying conditions. If left in one place a few years, most bulbs adjust themselves to their preferred depth. Approximately, bulbs should be about 2 or 3 times their diameter apart unless their habit of growth is spreading—like *Ranunculus*. In such cases plant farther apart. Bulbs as large as Daffodils may be 4" to 6" deep. Bulbs with a heavy erect stem need deep planting in order to remain erect. Plant deeper in light sandy soils than in heavy soils and in cold climates to protect them from frost.

Pests. Snails, slugs, ants, mealy bugs, thrips, aphids, leaf hoppers, mites, red spider and scale are among the most serious pests in the garden or on house and greenhouse plants. They must be controlled.

See our listing of **Insecticides** under **Garden Supplies**.

If you do much garden work and end the day too tired, you owe it to yourself to use our light weight plastic and indestructible garden hose. See the listing. It is the most economical of all.

Acid and Alkaline Soils. Most plants thrive in mildly acid, neutral or mildly alkaline soils. But others do not have so wide a range of tolerance. Rhododendrons, Azaleas, Camellias, Gardenias, Zantedeschias, Caladiums (and other members of Arum family), Nerines, Haemanthus, Gloxinias, Begonias, Orchids and most shade loving plants require an acid soil. Some like *Gladiolus* prefer mildly acid to neutral soils; Bearded Iris do best in neutral to alkaline soils. The acid-alkali balance depends upon the concentration of hydrogen ions in a saturated solution. This is expressed in pH units. pH 7 is neutral. Below that the acidity increases; above it the alkalinity increases. For the mathematical, I will explain that the numeral is the negative logarithm denoting the concentration of hydrogen ions in gram atoms per liter.

In regions having heavy rainfall, excess alkali is usually dissolved and carried away by the runoff. Semi-arid regions usually have alkaline soils. Calif. soils usually have too much unless cover crops or applications of humus, which are acid, have lowered the pH. I am told the Texas soils are sometimes too alkaline. The remedy is obvious. Apply humus, ground phosphate rock, or small, even applications of sulphur. Improve the drainage.

Potting Directions. Use clean pots of the right size, neither too large nor too small. A 2½" *Amaryllis*, for example, needs a 6" pot. A 1½" *Eucharis* needs a 5" pot. Small bulbs like *Ranunculus* or *Achimenes* may have 3 to 5 in a 5" or 6" pot. Cover the hole at bottom with a piece of broken pot, concave side down. Above this place small pieces of broken pot and gravel. This helps to drain away excess water. Over this drainage material we usually place a handful of sphagnum moss to prevent the soil from sifting into and clogging the drainage material.

The drainage must be perfect and it is essential that the soil above this drainage be of a friable texture that permits water to pass thru freely.

The best soil is a rich sandy loam with the addition of plenty of humus. For humus one can combine rotted leaf mould and old rotted dairy manure well broken up and rubbed thru a screen of smallest gauge. For most plants the proportion can be $\frac{2}{3}$ sandy loam, $\frac{1}{3}$ humus.

Fertilizers. Many advise the addition of fertilizer to potting soils. We never use any except the rotted dairy manure and leaf mould and sometimes a tablespoon of bone meal. If new roots come into contact with much fertilizer they are burned. Commercial fertilizer is especially a hazard. A potted dormant bulb, seed or plant must be babied to the extent of giving only a light diet. A rich, full meal will often cause failure. We prefer to get them well started and growing and of some size before adding more fertilizer, if any. The chief food of plants is carbon dioxide taken from the air thru the foliage. Water, nitrogen and minerals come from the soil.

When bulbs are well rooted, liquid fertilizer can be used once a month. Weak liquid manure is excellent but not quite as well balanced as Spoonit.

For the starting temperatures and further culture of the plants please read the culture advice given with the listings.

Sources of Further Information. Please note our **Garden Reference Books**. Join local garden clubs. Subscribe for as many garden magazines as you can. We especially recommend Popular Gardening, Dept. H, 90 State St., Albany, N. Y., and Flower Grower, Dept. H, 99 N. Broadway, Albany, N. Y. We are charter subscribers of both. I suggest you buy copies of each at your newsstand. You will probably then subscribe to both. These two magazines are devoted only to flower gardening—not to furniture, food, easy or luxurious living. Gardening lengthens life. Luxurious living shortens it.

GARDEN REFERENCE BOOKS

Bailey's Cyclopedia of Horticulture. This 3-vol. set of over 3,600 pages describes almost every cultivated plant and has a wealth of culture information. On Orchids alone, this work is most valuable for its descriptions and culture instructions for almost every orchid in cultivation. The same is true for all types of bulbs, plants, shrubs, or trees. Price \$40.00. This is the most monumental work in any language on the entire field of Horticulture. It is an ideal gift for a plant lover.

Hortus Second (Bailey). A Concise Dictionary of Gardening. This 778-page volume lists and describes nearly every plant offered in catalogs, and some that are not in the Cyclopedia of Hort. It contains only a few culture hints. Both works should be in every garden library. Price, \$8.50.

The above publications are subject to price changes, without notice, by the publishers. In the case that prices again rise on these or any books listed here we will notify the customer. The customer may then accept or cancel order.

A Southern Garden, by Elizabeth Lawrence, a handbook for the Middle South. A most useful handbook for all gardeners, north or south. Bulbs and all garden plants. 251 pages. Price, \$3.00.

Enjoy Your House Plants. Excellent handbook of window gardening by Dorothy Jenkins and Helen Van Pelt Wilson, 238 pages. Price, \$3.00.

American Orchid Culture. Edward A. White. This is a complete handbook of American Orchid Culture for both commercial and amateur growers. Most interesting accounts of Orchid hunting trips, in many lands, are related. 14 beautiful color plates and many other illustrations. A beautiful, interesting, useful book. 276 pp., \$6.00.

Greenhouse Gardening For Everyone. Ernest Chabot. Important factors are noted including correct temperatures for forcing plants, bulbs, and orchids. 266 pp., \$4.00. If you have a greenhouse, this is a necessity.

Tuberous-Rooted Begonias and Their Culture. George Otten, veteran grower of Tuberous Begonias, with 60 years experience. An 88-page book, with 35 excellent illustrations. Price, \$2.00.

Tuberous Begonias, by Worth Brown. Mr. Brown is one of our most important hybridizers and wholesale growers. His book is a complete guide for the successful growing and propagation, outdoors or as house plants. 128 pages, illustrated. \$2.75.

Bulbs For Beauty. Charles H. Mueller. 296 pages, illustrated. Experienced gardeners will gain new information about bulb culture from this book. Price, \$3.50.

How to Grow Orchids. By Cecil Houdyshel. A 12-page pamphlet, no illustrations, carefully explains requirements of easily grown orchids. Price, 25c.

The African Violet, Saintpaulia. Helen Van Pelt Wilson. The first and still the best book on Saintpaulias. Revised and enlarged, by Helen Van Pelt Wilson. The revision includes all the better new varieties. Discusses all phases of culture and classification of types and varieties. Price, \$2.75. **Special Offer**. We have only 16 copies left and can get no more. Every purchaser may have a \$1.00 credit on any African Violet order selected now or later or any other plants or bulbs. Or this credit may be used on the purchase of the following book. Many fans will like to have a copy of each. Or if you prefer to purchase this alone without a credit, send us only \$2.00.

The Complete Book of African Violets. By Helen Van Pelt Wilson. This book is completely new and gives up to date information on hundreds of varieties. 29 Saintpaulias are shown in full color. 256 pages, beautifully illustrated. Price \$2.95.

How To Grow African Violets. By Carolyn Rector. A Sunset Book. 94-pages, paper-board covers. Illustrated. How to pollinate, hybridize, grow from seed or leaf cuttings, prepare soils, control pests and diseases, groom plants for show, etc., by a real grower. Every grower needs this book. \$1.35.

The New Garden Encyclopedia. By a group of Horticultural Experts, edited by E. L. D. Seymour, a well known garden magazine editor and authority on gardening. This is a complete, practical guide for every detail of gardening. It gives pronunciations of plant name. 1380 pages, 10,000 articles, fully illustrated. The new 1951 edition contains 64 pages of full color illustrations. Price, \$5.00.

GARDEN SUPPLIES

In this price list, where an item requires "postage extra" you must send amount required with order. We are near Los Angeles, so just ask your P. O. what zone Los Angeles is in and postage required. You must add 1 lb. to weight of product to allow for weight of package and packing material. Thus if you order 1 lb. pkg. Snail-Kil Pellets send postage for 2 lbs. If you do not send the postage we must ship by express and this is more expensive on small packages. Since postage cost is only 15c for 2 lbs. in zones 1-2 and 30c for zone 8 and likely to be \$1.00 by express, don't overlook this.

Snail-Kil Pellets. 1 lb., 45c, plus postage for 2 lbs.—2 lbs., 75c, plus postage for 3 lbs.

Ant-B-Gon. Set of 4 filled dispensers, 75c, plus postage for 1 lb. Refilling liquid, 30c, plus 20c for packing and postage if by mail.

Volc Oil Spray, for outside plants. Kills mealybugs, scale, red spider, etc. Don't use on orchids or saintpaulias, or most house plants, palm trees or ferns. Fine to clean up your shrubs, trees and most outside plants. 4 oz., 35c. If by mail, send 25c extra.

Hexotone. When used as a spray or dip to kill mites, mealybugs, thrips, red spider, aphids, young scale in the crawling stage and most garden or greenhouse pests it is effective. Treatment should be repeated at intervals for complete control. Foliage will not be burned even by dipping if withdrawn promptly and not soaked for a few minutes. Any insecticide that will do this is necessarily a poison equally dangerous to all animal or human life. One must avoid skin contact and breathing the fumes. For safety, spray plants in evening. Close the room and do not enter until next morning. Give the room complete change of air before remaining therein. Wear rubber gloves when dipping or spraying. Use tongs if dipping. When through, wash hands, gloves, etc., with warm water and soap. These precautions are given to make you completely safe when using any very poisonous insecticide and need not alarm you. Carelessness has no place in the use of poisonous sprays. Price, 4 oz., 85c on express orders. By mail add 25c for postage and packing.

Thrip-O-cide. For gladiolus thrips. Also good on other plants and for other pests. It is recommended to kill scale and other pests on orchids. 4 oz., \$1.15 postpaid.

We assume no responsibility for results with any insecticide.

Fertilizers. In the form of tablets are very easy to use. Merely push one down to soil level at side of pot. Price, 10 tablets for 10c with orders or alone for 22c, which includes postage and clerical costs.

Spoonit is the fertilizer we use and recommend for all greenhouse and house plants. Analysis shows 18% nitrogen, 18% phosphoric acid, 14% potash. To use, dissolve one level tablespoonful of the powder in a gallon of water. Apply once a month. Give small transplanted seedlings half strength, first time. Prices: 7 oz. can, 50c, plus postage on 1 lb.—24 oz. can, \$1.00, plus postage on 2 lbs.—4 lb. can, \$2.00, plus postage on 5 lbs.

Postage is extra on Spoonit and some other supplies. We have always told you the packed weight and instructed our customers to phone to their P. O. and find the postage cost. Since Los Angeles is a suburb of La Verne, just ask for the postage from your office to Los Angeles on the weight when packed and add that amount to price of the item. Many of our customers blithely ignore this. Then we must find out from our P. O. and write a card asking for the amount. This costs us more than our profit. Our 1952 New Year's resolution is to cease doing this. If you do not want to find out in the manner we suggest just send us a flat rate of 27c for the first pound and 14c for each additional pound. This is 8th zone rate and will be too much for less distance, so you will save money by finding out yourself. Or we will ship, f.o.b. express.

Potting Soils. Many inquire for them. We do not sell prepared soils but we do give you the correct formula in culture requirements when needed. We have bought and tested prepared soils and have usually found them inferior to the soils we recommend. You can get sand, small gravel, garden loam, leaf mould, etc., locally. Below we list the rest of the makings.

Peat. We are fortunate in being able to offer ground Holland peat in highly compress bales. We believe this is the best we have had in many years. Price, 3 lbs. for 50c or 8 lbs. for \$1.00. F.O.B., express. If by mail, add 2 lbs. to each weight for carton and send the postage.

Sphagnum moss. Buy this (and peat too) locally, if available. It should cost you less. We must buy in the east. Freight and express rates are now increased and we have to advance some prices. We offer best Sphagnum we can get for 70c per lb., f.o.b. La Verne. By mail send postage for 2 lbs.

Milled Sphagnum. This ground sphagnum is a wonderful medium in which to grow acid loving plants and is discussed in our culture advice. Price, 90c per lb., f.o.b. By mail send postage for two pounds.

Plastic Garden Hose. We believe our plastic hose is the lightest in weight, the strongest and longest lasting hose made. It is not damaged by sun or weather, being run over by auto or truck, by chemicals, nor does it rot like rubber hose. Light and easy to carry as 25 ft. weighs less than 3½ lbs. Price, 25 ft. length, \$5.50, plus postage on 4 lbs. 50 ft. length, \$10.75, plus postage on 7 lbs.

Wire baskets. Our wire baskets are electrically welded, galvanized, non-rusting steel. The best obtainable. They look better, last longer than painted, soldered baskets and cost but little more. Price with hangers: 8", 95c, \$10.50 per doz.; 10", \$1.20 ea., \$12.75 per doz.; 16", \$2.75, \$25.00 per doz. Postpaid. Increased cost of postage, plus a carton makes necessary a slight increase in cost of one but not on doz. rate. Six may take doz. rate.

Snap On Pot Hangers, for hanging any size pot in tree, lath or green house. Galvanized, non-rusting steel. 45c ea., \$4.50 per dozen.

Baffle Spray Fogger. For greenhouse, lathhouse or outside. Fits ½" pipe. Adjustable, fog spray thrown 6 ft. increases humidity, lowers temperature. Useful cooling effect around poultry or rabbits, houses or plants. Price, \$1.36. If by mail add 10c.

Hose End Fogger. Coarse or fine spray. Useful for spraying orchids, tub. begonias, etc., and for damping greenhouse to increase humidity or as a movable fogger. \$1.50. Postage 10c extra.

Rootone. Dust seed, roots of transplants, end of cuttings or base of bulbs for quick

rooting, more rapid growth. ½ oz. 50c, postpaid. 1 lb. can, \$5.00, plus postage for 6 lbs.

Vitamin B-1, 100 tablets, 75c.

Directions for use, applying only to our own tablets. In transplanting bulbs or any plants, loose roots, dissolve 5 tablets in 1 gal. of water. Soak roots in this 15 to 30 min. Pour solution around plant when set. To stimulate growing plants, for the first application, dissolve one tab. in 2 gal. water. For succeeding waterings, use 1 tab. to 4-gal. water once a week. **Warning**. Do not soak dormant bulbs in Vit. B-1. It rots them.

Supplies do not take quantity rates as applied to bulbs except as specified. They are also subject to price changes.

POT PLANTS

Many bulbs, corms and tubers are most desirable for growing in pots as house or greenhouse plants. In the following pages, hundreds of varieties are listed and full directions are given for growing them. Many other plants like Billbergias, Anthuriums, Orchids, Marantas, Maricas and African Violets are favorite house plants and are listed although they are not "bulbs." We try to offer you the world's finest plants (including bulbs) for growing in pots.

CATALOG ARRANGEMENT

is by Plant Families, according to their relationship.

In the following lists the **genus** (plu. genera) is mentioned first. After it, the **species** (plu. also species) or horticultural variety is named. The initial of the genus is used for the second and succeeding species. Thus A. will stand for Amaryllis or Agapanthus depending on the genus last named in full. When a person's name in parentheses follows a plant's name, that person is the botanical authority for the name.

THE AMARYLLIS FAMILY — Amaryllidaceae

This Family includes the following bulbs, Agapanthus thru The Alliae.

The American Plant Life Society was founded in 1934 as The American Amaryllis Society, which still carries on as an integral branch of the larger society. The interests of the society now include other bulbs and plants. There is no lessening in the interest paid to Amaryllids.

The annual book, "Herbertia," is devoted to Amaryllids. It consists of 135 or more pages, beautifully illustrated, on fine book paper, and is edited by Dr. Hamilton P. Traub of the U. S. Dept. of Agriculture, the greatest living authority on the Amaryllidaceae. Each member receives a copy.

The members also receive the occasional publication, "Plant Life," on other bulbs and plants. As a temporary economy measure, Herbertia may be bound with Plant Life.

Those who grow Amaryllis as an interesting and intellectual hobby and who love their vivid beauty, are invited to become members of the society. The annual dues are \$3.00 per year, which you may send to Mr. E. Frederick Smith, Sec., Box 2398, Stanford, Calif., or you may include this membership fee with your bulb order to me.

The Society also publishes the following books, bound in manila paper.

Amaryllidaceae: Tribe Amaryllae, by Traub and Moldenka, 18 illustrations, 194 pages. \$4.00. This is a systematic treatment of one of the main tribes of Amaryllids, in scientific language. The most important work on the taxonomy of Amaryllae since the publication of Baker's "The Amaryllideae," in 1888.

Catalog of Hemerocallis Clones, 1893—1948. The only complete work of its kind. 100 pages. \$1.50.

Amaryllid nomenclature. Carl Linnaeus, father of modern botany, made the first, rather complete scientific arrangement of plants according to relationships in the 18th century. His information about many plants was wholly inadequate to achieve perfection. Even in my later first French edition, 1798, nearly all American epiphytic orchids were

placed in one genus, *Epidendrums*, and under the genus *Amaryllis* he included certain *Crinums*, *Zephyranthes*, *Sprekelias*, *Brunsvigias*, *Nerines*, etc. Botany is a progressive science and later explorations and discoveries have made possible many improvements in plant classifications and have required changes in nomenclature. Horticulturists are often loath to accept the new classifications and names. But we must do so even if inconvenient at first. It is not logical to continue an error.

In our catalogs, we accept changes in classification and names as made by recent writers in *Herbertia*. These have been approved by "*Gentes Herbarum*," the publication of the Bailey Hortorium of Cornell University. To help you avoid ordering a bulb you already have we give both old and new names, thus: *Brunsvigia rosea* (*Amaryllis belladonna*); *Amaryllis advena*, (*Hippeastrum advenum*).

Agapanthus means Love Flower. Blooms in spring and summer. Large attractive umbels, blue or white on tall erect stiff stems. Easy to grow in south in full sun or slight shade, any good soil, and in the north in tubs or buckets, wintered in basement. Delivery any time.

A. longispathus. New species. Flowers resemble *Orientalis* but blooms more profusely and is more graceful. 50c.

A. orientalis (unbellatus). Blue Lily of the Nile. Our variety is an especially fine one with deep blue flowers on a tall stem. Many flowers are produced in spring and thru summer. 50c ea. Extra large roots, 75c.

A. orientalis, "Sky Blue." Lovely light blue. 75c ea.

A. orientalis alba. A pure white. \$2.00.

Amaryllis Linn. This genus as constructed by Linneaus was untenable because he included plants now known to belong to other genera. The invalid name *Hippeastrum* was used by both Herbert and Baker, but now we are scientifically correct when we use the name that has always been most popular. To the word "*Hippeastrum*," literally translated "horse star," we can now say "horse feathers," and forget the word.

Amaryllis are the easiest, the most showy and popular of all bulbs for growing in pots. Equally desirable for southern gardens where they are hardy along the east coast to N. Car. and on the west to Vancouver. In the middle section they may be grown as far north as Ark. and Okla., but note special directions for colder sections.

How to Grow Amaryllis. In the garden, in the deep south where temperatures go only a few degrees under freezing, *Amaryllis* bulbs need to be covered only about an inch or two. Farther north they should be planted about an inch below frost penetration, in protected places and mulched with straw, leaves and/or brush. In Okla., a customer reports a depth of 4" with mulch is safe. Try our "Hardy Hybrids" and don't plant over about 6" deep to top of bulb. 4" is better.

Imported, green house grown *Amaryllis* usually do not do very well in outside garden. We advise pot growing and if shifted to outside in summer, do not let them become dry or otherwise neglect them. In order to achieve high quality of flowers, foreign breeders neglect sturdiness and hardiness.

In Pots. A bulb 3" or less in diam. needs a 7" pot, and larger bulbs need larger pots. It is better to pot in Nov. or Dec. Better blooms result. But one can pot them as late as March and it is better late than never. The early potted bulbs will start more easily and give better flowers, but in either case the flowers will be better and will show more fully their full quality the second year.

The best potting soil is a rich sandy loam. If not sandy use a friable loam and add sand. To this add an equal quantity of well screened and well rotted dairy manure and leaf mould. Use no fresh or partially decayed manure. I have always advised against the use of any peat or *Sphagnum* in the *Amaryllis* soil. This was a deduction from the fact that I had found that sulphur in *Amaryllis* soil is toxic to the bulbs. I attributed the bad effect to the acidity of sulphur. If this were true then peat or sphagnum would be bad, as both are acid. A few months ago, a customer brought the remnants of an imported Dutch *Amaryllis* which she could not make grow. Knowing the value of sphagnum for starting cuttings and a good many tubers of the *Gesneriaceae* and *Araceae* and many bulbs, seeds, etc., I tried the *Amaryllis* in pure sphagnum. It was rooted within a week

and foliage was started. I am now inclined to believe that sphagnum may be favorable in the potting soil for the greenhouse grown, Dutch Amaryllis. If you have trouble with them try this and tell me the result.

A tablespoonful of bone meal for a 6" pot is recommended.

In potting the bulbs, carefully preserve any living roots, even remnants. Clean but do not scrape the base of the bulb and dust the moistened surface of base and the roots with Rootone. If there are no roots, coat base of bulb with Rootone, which will hasten their formation.

Pot the bulb two-thirds above surface and water enough to settle soil. After this keep the soil only slightly moist until growth starts, then gradually increase. When first potted set them in a cool, light room but not in sunlight, the best temperature now is not over 50°. The bulbs must have sufficient time to form a good root system under these conditions. If placed in a warm room and exposed to the sun, top growth will be made before roots, and the result may be poor flowers or none.

When you are sure that roots have formed, but not before, water the plants as directed with (or without) Vit. B-1. But be sure to leave the bulbs a sufficient length of time in a cool room. They need this period of dormancy and sufficient time to make a good root system. Many fail because they try to force bulbs before they have rested and have made good roots. If you get a poor flower it may be because the bulb had no roots and had only the sustenance stored in the bulb from which to make flowers. Lack of a good root system to nourish the flower will affect the quality of the flower in every way—size, substance and even color. Then bring the pots by easy stages to a temperature of 60°, then about 65°. Day time temp. should never be much over 70° for best blooming.

After flowering the bulb has shrunk and a long period of growth is necessary. If good growth is made at this important stage, the bulb will become much larger and off-sets may be made. Keep them growing as long as possible. When the weather is warm outside the pots may be plunged in the garden. If rim of pot is sufficiently below soil surface the roots may emerge and add range to the root system. Or better still, shift the bulb and the unbroken lump of soil to the garden. Water liberally during growth.

Self colors are most desirable to go along with stripes or other markings. Self reds, scarlets and pure whites are expensive. There are a few self colors in our Select Strains but they are not separately identified. Don't order selfs or any color not listed. Pollinate your best flowers, plant seed and you will likely produce a few selfs. Save and grow their seed for still better ones.

There is no quantity discounts on Amaryllis except as specified in the listing.

A. ambigua. The flowers have a long tube, like a lily. There are 5 or more on a very tall scape. The exquisite, spicy fragrance perfumes the entire garden. Customers report success with pot culture. Hardy in south. The bulb may be covered by 4" of soil. \$2.50.

A. immaculata. Usually known as *A. candida*. The long, tubular, lily-shaped flowers are pure white. Deliciously fragrant. Jumbo bulbs, about 5" diam., \$5.00.

Amaryllis hybrids. We offer the best field grown American strains. We call them the Select Strains. These field grown bulbs are much easier to grow than imported greenhouse grown bulbs. In order to produce the high quality Amaryllis, selected bulbs are grown in the greenhouse for one season. The flowers are hand pollinated. Thus there is more certainty of high quality than from seed collected at random in the field.

Color Classes. These are named from the parents. When they first bloom, off colors are removed or "rogued" out. They are again rogued the second year. Nevertheless, the color classes are only approximately correct. Many off colors are missed when roguing. There is also a wide difference in opinion as to color. One calls a flower pink. Others may call it rose. Therefore, we do not guarantee the color but we do exchange them if the customer is not satisfied. Seldom, however, is a customer willing to part with a bulb of this strain, even tho it be an off color. The following color classes are as selected and named by the originator. When you get a wrong color and do not wish to keep it, notify us at once and await instructions.

Select Strains, Assorted Colors. 2½" diam., up. 90c ea. 3 for \$2.50. \$9.50 doz.

Select Strains, Near White. 2½" up. Last year we found about 5% of these were pure white. None have as much color as White Backgrounds. We have planted seed of these and a few came pure white. They are hardier and easier to grow than the imported whites. Price \$3.00, or 3 for \$8.00.

Select Strains, White Background. 2½" up. The general effect is of a white flower but all have markings in a variable degree. \$1.00; 3 for \$2.75.

Select Strains, Scarlet or light red. 2½" up. \$1.00. 3 for \$2.75.

Select Strains, Crimson, 2½" up. \$1.00; 3 for \$2.90.

Select Strains, Rose shades. These are all the shades found in roses except yellow and white and many have the purple or lilac tone of the rose. \$1.25; 3 for \$3.50.

Please note, the above are not described as self colors. A few are selfs. When you get a self color in good quality, it will be worth 3 times its cost.

Delivery as soon as weather permits.

Houdyshel's Hardy Hybrids. These are not hardy outdoors in the colder northern states but as far north as North Carolina, Washington, D. C., Oklahoma and even So. Kansas these have proven winter hardy if covered by 4" or 5" of soil and given a good winter mulch of straw. Possibly with a pile of brush above the straw they might be wintered in the garden further north.

This is an extremely vigorous, rapid growing and multiplying strain and equally prolific with flowers. Most of them are similar in color, orange scarlet with white throat and green keel. An ideal strain for outside planting and landscape effects. Their bright vivid color "hits you in the eye." Altho not an exhibition type, many will like them in pots, where they are easier to grow than the more aristocratic hybrids. 75c ea. \$7.50 per doz.

Extra large bulbs, \$1.00.

Amaryllis Seed. Our 1951 crop was small and was priced according to supply. A few are left on hand. They will not germinate in as high a percentage as fresh seed but if planted now they are likely to flower one year earlier than if you wait for 1952 seed. Price is reduced in proportion to probable germination percentage. 25 seed for 45c.

Plant seed as soon as received in good sandy loam soil. Add a good portion of fine leaf mould. Seed may be just touching on edges. Cover with ½" soil. If in pots and soil is wet, cover with a pane of glass and they are likely to come up before soil becomes dry. Keep seedlings in house or greenhouse the first 2 or 3 winters so that they can grow all winter. If this is done, they usually begin to flower in 2 or 3 years. They can be transplanted at any time to give more growing space.

Plant Breeding is an interesting science and art. Undertaken as a hobby, it has often resulted in fame. It will involve and develop great skill, ideals of beauty, good taste and intelligence. I suggest you start with our Select Strains. Get several bulbs and use the pollen only from those you like the best. Cross pollination is easily accomplished by placing the powdery pollen borne by the six stamens on the stigma in the center. The stigma when ready for pollen will usually be opened into three parts. Seed should be planted soon after ripening. Some of the seedlings of our Select Strains will be fine self colors.

Brunsvigia rosea, *Lycoris aurea*, *alba*, *Sprengeri*, *radiata* and *squamigera* and all the *Nerine* species can be moved about June to July. Unfortunately too many people do not like to work in the gardens in the summer, especially to plant bulbs. When we list them in the spring we sell too few to pay for the space used in catalog altho that is the very best time to move these bulbs. If you are an exception, please order these items from our last fall catalog or any former catalog and request they be sent about July 1.

Clivias have evergreen, strap-like foliage somewhat resembling that of *Amaryllis*. The flowers are produced in umbels of 10 to 25, in rich and exquisite tones of orange, in March and April. When not in flower the deep rich green foliage and later the red fruits are most ornamental.

Culture. They are usually grown in pots, even in the south, as more perfect foliage is thus possible, and when in flower one wants them in the house. We grow them in a lath house, lath spaced ½" apart, and in garden under Avocado (evergreen) trees, directly in the soil as they are often grown in Calif. When grown thus they will make very large

clumps. They must have shade with only a few flecks of sunshine, but plenty of light and air.

Clivias must never be dried off or allowed to lose their foliage. Keep them well watered after flowering, all summer and fall. Liquid fertilizer occasionally helps. When growth ceases in late fall rest them by giving them less water. But keep moist enough to prevent wilting of foliage. At this time they should have a cool room with temperatures from above 32° to not much over 50°. Pots should be 8" for a small plant up 12" for larger. As they grow and increase, do not divide but shift to larger pots. Drainage must be perfect. Potting soil is described under "General Culture Directions." pH7 is about right. One cannot guarantee a Clivia to flower the first year after moving tho they usually do.

The foliage of our Clivias, grown outside in the ground, will not be as perfect as that of pot grown plants. But when potted, they replace the old foliage in a few months and become specimen plants.

Clivia miniata. Wide open flowers of soft yellow orange. Hardest. \$2.75.

C. miniata hybrids. Similar to the species "miniata" in foliage, hardiness, wide open flowers, etc., but there is some variation in color and form of flower. Most of them are in light orange tones. A few are dark and a few have a white throat. Do not express your color preference for any Clivia hybrids as we cannot tell the color from the plant.

Price \$3.00 ea. Small plants, \$1.00 and \$2.00 ea.

Most **Crinums** are large bulbs and plants tho a few are no larger than an Amaryllis. They are very popular in the south and are a common sight in southern gardens. Among trees and shrubs they are indispensable.

The lovely lily-shaped flowers are useful to florists especially those who must grow most of their own flowers. They are particularly nice in a wreath.

Culture. C. bulbispermum is hardy in the north, but there it should be planted 6" or more deep and mulched in winter. Crinums moorei, Cecil Houdyshel and Powellii alba are almost if not entirely as hardy.

The ideal situation is among trees and shrubs, in a sandy soil but all except moorei can be grown in full sun exposure and in heavier soils. There should always be much leaf mould and peat incorporated in the soil—especially if heavy. The alkaline California soils need the addition of peat for growing Crinums. If your Crinum foliage becomes blotched with lighter green, as in the case where plants are infected with mosaic disease, the addition of much peat to this soil will lower the pH and probably cure the plants.

Crinums succeed in large pots or tubs but most of them require much space for house or greenhouse growing. They can be stored over winter and set outside in the summer.

In the south the bulbs should be planted very shallow.

Crinum Americanum. Our only native species. Beautiful, narrow petaled, light pink flowers. Resembles a spider lily. This is a superior clone that does well in California. \$1.50.

C. bulbispermum. We have sold this as "capense," then as "longifolia" but botanists give priority to the present listed name because first given. We are out of the white form, alba, and offer only the pink, rosea. Hardy in north, if planted deep. Small, 50c. Good blooming size \$1.00.

C. campanulatum. Belongs to the "Milk and Wine Lily" type. That is, the flowers are white with a bright rose stripe thru center. \$1.00.

C. Cecil Houdyshel. Flowers deep rose pink. One of the best hybrids, all qualities considered. It has the same parents as C. Powellii but with C. bulbispermum as the seed parent. Instead of flowering only once, like Powellii, this hybrid flowers most profusely. One very large bulb has been known to give 12 or more flower scapes in one year. A large clump will give continuous bloom from spring to fall.

An article in the Kansas City Star by Jack Romine, about two years ago reported it hardy in that vicinity. Now there are many growing from Topeka, Kan. to Independence, Mo. If planted 6" or 8" deep (to bottom of bulb) and heavily mulched over winter it has survived 10° below zero temperature. Spring is the best time to plant this and all

Crinum in the north. Thus they become well established before fall and are more winter hardy.

We offer several sizes. Smaller sizes will give a start but are unlikely to flower the first year. Prices: Small, \$1.25; medium, a blooming size, \$2.00; large, \$3.00. This year we have some jumbo bulbs that require so much postage we must price at \$4.00. In time, even these grow still larger. They multiply profusely and soon form a large clump.

C. Ellen Bousanquet. Large, glowing, dark wine red flowers. The most beautiful crinum. \$1.00 and \$1.50.

C. Erubescens. Milk and Wine Lily. Red purple center stripe on petals. 75c to \$1.50.

C. H. J. Elwes. Pink, very beautiful. Does not make large bulbs. Small plant more suitable for pots. Tender. Small, \$3.00.

C. Louis Bousanquet. Very free flowering thru an unusually long season. Pink flowers on a very tall, erect scape. 75c and \$1.50.

C. Moorei. Large pink, bell-shaped flowers in the fall, freely produced. The long neck of the bulb surmounted by rotated leaves give the plant great decorative value. Requires shade. Nearly as hardy as *bulbispermum*. \$1.00 and \$1.50.

C. Peach Blow. A beautiful pink flowering Crinum but here it is a shy bloomer. Small plant suitable for pots, \$5.00.

C. Powellii alba. Extra fine pure white. One of the most valuable and beautiful Crinums. Small 50c. Good blooming size \$1.00. Largest, \$1.50.

Eucharis amazonica (or *Grandiflora*). Eucharist Lily. Star of Bethlehem. First collected on banks of Rio Magdalena, Colombia, S. A. Thus are combined three Biblical names in the lore of this flower. There are 4 pure white, very fragrant flowers in an umbel, with a cup in center. The beautiful evergreen foliage makes this always a decorative plant. Flowers are used in corsages and bouquets.

Culture. For pots only. Soil, coarse, fibrous loam with coarse sand, granular charcoal, tablespoon of bone meal and a little cow manure added is usually recommended. We use more peat and milled or even coarse sphagnum moss and get excellent growth and flowers.

Because they need abundance of water when blooming, the drainage must be perfect. Use 5" pot. Feed with Spoonit or manure water except when resting, shaded but plenty of light and some sun is needed to develop flowers. Frequently they flower very soon after potting. If they do not, induce good growth for several months until offsets appear and pot is well filled. Then dry them off, giving only enough water to prevent entire loss of foliage. After a few weeks rest, water once or twice. If they do not flower the rest was not long enough or the growth before was not sufficient. From 2 to 4 crops a year may be had. They are tropical plants and 65° is the best minimum night temperature. We offer the best and largest imported bulbs we can get, about 2" diam., at \$2.00 ea. Smaller bulbs, \$1.50.

Elisena longipetla. Very rare and lovely Peruvian amaryllid. It is related to the *Ismene* but the pure white flowers are far more delicate and graceful. Culture like *Ismene*. It can be forced in pots or grown in the garden in summer. Bulbs stored over winter like Glads. It is hardy in the middle south. It may be crossed with *Ismene*. \$2.00.

Habranthus robustus. Long tubular, lavender pink solitary flowers. Closely related to *Amaryllis*. A "now and then" bloomer in all seasons if watered well. Hardy in middle south and a good pot bulb. Plant 4" deep. Full sun. 40c ea.

H. brachyandrus. A larger purplish flower that is most attractive. Like most *Habranthus* they bloom several times a year by alternate dry and wet weather, natural or artificial. \$1.00 each.

H. andersoni texanus. A small Texas native sometimes called Rain Lily as it blooms many times a year, after a rain. Coppery yellow. 75c ea. Delivery in spring when dormant.

Haemanthus. The Blood Lilies of South Africa. So rare that few have seen them.

Culture. Hardy only in almost frost free climate like So. Calif. or Fla., if temperatures do not go below 24° at night. They do well in pots anywhere. The soil should be

very sandy and contain a good proportion of leaf mould or peat as they are shade plants and like mildly acid soils.

H. albiflos should be potted with half of the bulb above surface. The others covered to top of bulb. When growing, they should be kept moist, not soggy.

Haemanthus produce red fruits containing seed. The flowers require hand pollination which may be done by rubbing palm of hand over the flower umbel when pollen is ripe. This spreads it to the pistils. Do this every few days as flowers do not all open at one time. Thus many valuable seed may be produced. Do not gather until quite red. When ready to plant, remove outer pulp and plant by pressing seed down slightly into soil but do not cover. One may plant in large clay pans and covered by pane of glass. Thus no watering may be needed until most of the seed are started. Growth begins by emergence of a radicle which will penetrate the soil. If soil is not loose, it may need help. A small bulb will form on tip of radicle and will later send up a leaf.

Collecting and growing *Haemanthus* is an interesting, useful and even profitable hobby.

Haemanthus albiflos, type var. 2-4 leaves, erect. Umbel of 100 or more small white fls. in fall. Evergreen. \$3.00. Delivery any time of year.

H. albiflos, var. ***brachyphyllus***. Shorter, broader leaves, ciliated on edges. Prettier flowers on shorter scape. A more attractive pot plant, but very rare. \$10.00.

H. carneus. A small species that is winter growing like *coccineus*. Flowers are pink to flesh colored in an umbel on a 6" to 8" stem. They begin in early July and some flower as late as last of Aug. Two short, prostrate leaves follow the flowers. \$2.50. Delivery, late spring when dormant.

H. coccineus. The true Blood Lily, altho all *Haemanthus* are known as Blood Lilies. The umbel of scarlet or blood-red flowers come in late Aug. to Sept., after a 3 months dormancy. Two long semi-erect leaves follow the flowers and remain green thru the winter and early spring. The scape is attractively marked by red spots on a bright background. Good flowering size, \$3.00. Extra large that should give many more flowers and seed, \$4.00. Order early. They are usually thru flowering, even in storage by Sept. 15 to 30. Order now and we can deliver about June.

H. Katherinae has been called the most beautiful of flowering bulbs, in both foliage and flowers. The umbel of bright red flowers is often 10" in dia., often there are 125 or more flowers. The broad leaves spread from the top of a 10" stem making this a very attractive plant, for a 10" pot. Flowers usually in June or as late as Sept. In Jan. or later the green top bends over, the neck splits and a new growth emerges. Our stock is limited. Good flowering size, \$5.00. Largest size with several offset, small bulbs attached, \$7.50. Delivery Jan. to Apr. Too tender for mail delivery to north when very cold. We will ship f.o.b. express very early or await warmer weather and ship postpaid. Please instruct us.

H. multiflorus. The flowers resemble *Katherinae*. They are a little smaller umbel and on a smaller plant but still distinctive and of exquisite beauty. They do well in pots but not in the garden in Calif. As a pot plant they are highly desirable, anywhere. The bulbs are dormant in Jan. and must be ordered early as they start to grow and flower very early. Prices range according to size at \$5.00 to \$10.00.

***Hemerocallis*. Daylily.** The flowers range in color from dark bronzy red, thru pastel tones of pink to orange and yellow. They are borne on a branching scape well above the foliage.

The Greek name, meaning "beautiful for a day," refers to an individual flower. But these are so freely produced, thru a long period, that "beautiful every day" would be more apt, as a collection of several sorts show masses of flowers thruout the spring, summer and fall and here we often have some winter flowers. The modern sobriquet of "The Perennial Supreme" is well deserved.

Culture. While their beauty is their greatest recommendation, their easy culture and hardiness add to their desirability. I have known abandoned plants here, where we have arid, hot summers, to persist for years. They grow well in full sun. Slight shade is better. If given constant moisture about their roots, preserving this and coolness of the earth with

a good mulch, the plants are ideally situated and respond with generosity. They are hardy, even in severe winters in the north. They are fibrous rooted, not bulbs, and must be planted at once when received. Altho they can be moved any time, it is better to ship from late fall to early spring.

They are an almost perfect border or landscape plant, never have to be dug and re-planted. All that you must do for them is keep the weeds down and water. A heavy leafy mulch helps every way.

In Daylilies, the sepals are colored and petal-like and are an essential part of the floral display. Best planting time is fall, winter or spring. They can be planted in summer also.

In the following list those plants known to be evergreen here are marked E. These often flower here in winter.

Hemerocallis Araby. 30". E. A lovely pastel color, with the effect of bronze on gold dust. Blooms early. 75c.

H. Calypso. Large, fragrant lemon yellow flowers. Opens in evening. 42". June-August. 30c ea.

H. Cecil Houdyshel. E. A Dr. Traub origination. A deep crimson with an old copper shade that makes it outstanding in our garden. Slight shade gives better color to flowers. 3 ft. June-July. \$1.00.

H. Chengtu. E. Brilliant coppery orange-red with carmine mid-zone. 36". July-Sept. 50c.

H. Cinnabar. E. Cinnamon sprinkled with orange, gold-glistening. 30". July-Aug. 50c.

H. Crown Prince. E. Color like Mikado. 30". June-Aug. 25c ea. Per doz. \$2.25.

H. Dauntless. E. Cadmium yellow. Fulvous red blended in mid-zones. Pastel effect. 30". June-Aug. 75c.

H. E. A. Bowles. 48". Large ruffled flowers of deep red-orange blended with gold. Early. 75c.

H. Evangeline. 40". Large, rosy flowers with purple eye zone. Early. \$1.50.

H. Florham. E. Still popular old hybrid. Large, golden yellow. May-July. 50c.

H. Florida. Pastel shades. Light chrome yellow with rose blush. Darker mid-zone. July-Aug. \$1.50.

H. Iris Perry. E. 36". July-Sept. Orange-bronze. 50c.

H. Kwanso. The Double Orange Daylily. 25c ea. 3 for 50c.

H. Linda. E. Petals, ruffled golden yellow, flecked with cinnamon, and a rose zone. Sepals, pure yellow. Very lovely. June-July. 50c.

H. Mandarin. E. 48". Lemon yellow. June-July. 50c.

H. Margaret Perry. E. Brilliant orange-scarlet. 4 ft. July-Aug. 35c.

H. Mikado. E. Orange with mahogany-red zone. A favorite. 3 ft. May-July. 35c.

H. Modesty. 36". Large, pale creamy yellow. Our nearest white. \$1.25.

H. Nubiana. E. Dark chocolate-red with yellow stripe in petals. One of the darkest varieties. 2 ft. 60c.

H. Patricia. 30". Pale yellow, large fragrant flowers. July-Aug. \$1.00.

H. Radiant. 42". Rich orange, June-July. 50c.

H. Rajah. 40". Deep English red, veined darker. Garnet red eye-zone. July-Aug. 75c.

H. Rosita. E. 36". Near carmine, tinted copper. Part shade best. \$1.00.

H. Royal. E. 40". Beautiful golden yellow. Fine texture. July. 75c.

H. Serenade. 48". Rose on apricot cream. Faint dark overcast. June-July. 75c.

H. Sibyl. E. Dark red-purple petals, lighter sepals. \$2.00.

H. Soudan. 36". Lemon yellow. Broad, wavy petals and sepals. June-July. 50c.

H. Spitfire. 30". Fiery red, yellow mid-rib and throat. Almost constant bloomer, spring to fall. \$1.50.

H. Vesta. 30". Deep orange with glistening gold sheen. May-July. 50c.

H. Vulcan. E. 30". Darkest maroon red. July-Aug. 75c.

H. Wau Bun. Large apricot, sprinkled fulvous-red. The twisted and curved petals add gracefulness to its beauty. 75c.

Ismene. Their large, very fragrant, white flowers are very desirable for cutting and

are seen often in florists' shops. The flowers are about the size of daffodils and because there is a cup in the center, they are often called "Peruvian Daffodils."

Culture. They are hardy only in the south. With deep planting they may be grown as far north as the Carolinas, where they should be covered by 5" of soil and well mulched in winter. Probably safe to leave in the ground in Oklahoma. In the north, plant in the garden in early spring and after frost cuts down the tops, dig and dry the bulbs well, then store at a temperature over 55°. If too cold in storage the bulbs will not flower and they may rot. Even in the south they must be covered by 4" of soil. *Ismenes* can also be grown in pots.

***Ismene calathina*.** Not available this year.

***I. festalis*.** An *Ismene-Elisena* hybrid. Pure white, no green markings. Long, narrow petals give great refinement and beauty to the flowers. No white *Amaryllid* is more elegant. \$1.75.

***I. Sulphur Queen*.** Hybrid of *I. calathina* and *I. Amancaes*. Light yellow. Very rare, beautiful and most desirable. Special 1952 price. Blooming size, 60c. Extra large, 85c.

***I. macleana*.** A very tiny *Ismene* on long stems. Probably the hardiest. 25c. \$2.25 doz.

Collection of 3 var. *Ismene*, \$2.50. Note *Elisena* after *Eucharis*.

***Sprekelia formosissima superba*.** Orchid *amaryllis*. Deep crimson flowers in orchid-like form. Much larger than common type, better color, more flowers. Evergreen. Fine in pots. Culture like *Amaryllis*. 50c.

***Tulbaghia violaceae*.** Small cousin to *Agapanthus*. Mauve flowers produced thruout the year, a true ever-bloomer. Foliage has garlic odor if bruised. An acquisition for pot culture. 25c ea. 5 for \$1.00. \$2.00 per doz. Delivery all year.

***T. fragrans*.** This much larger species has a large, true bulb, with glaucous green foliage, 18" long and 1" wide. It has no allium odor. The plant is a profuse winter bloomer in a cool room, with a few flowers in summer. It was introduced to this country only a very few years ago. It has larger, more fragrant flowers than *violaceae* in the same color. Evergreen. Since it increases rapidly the bulbs are a good investment for dealers or for plant exchanging. \$2.00. Delivery all year.

***Zephyranthes*.** Fairy lilies. The smallest *Amaryllid*, 6"-12" tall. Fine in beds or borders. Hardy in middle south. In north dig and store. They may be grown in pots. Give acid soil, sandy loam with leaf mould or peat. Full sun or slight shade.

***Zephyranthes grandiflora*.** The largest *Zephyranthes* and the best pink. It is very easy to grow. In the south, its habit of flowering every time it rains in summer gives it the name of Pink Rain Lily. 15c ea.

***Z. rosea*.** Small, but very lovely deep pink flowers. They do not do well in very alkaline soils. It should be neutral to mildly acid. Fine in pots, about 8 or 10 in a 5" pot. 15c ea. 10 for \$1.25.

The Alliae, or Onions, are now classed in *Amaryllidaceae*. The following are ornamental and useful for seasoning salads, soups or meats.

***Allium schoenoprasum*.** True Chives, Small clumps, 10c. 3 for 25c.

***A. tuberosum*.** **Japanese Garlic.** Deliciously flavored leaves. Evergreen and probably not hardy in north. 25c. (Try wintering in a pot.)

IRIS FAMILY — Iridaceae

Iridaceae include the very large genus *Iris* as well as *Gladiolus*, *Marica* and many that we list in the fall catalogs.

Tall Bearded Iris. Nearly 250 of the latest and best are listed in our "Iris 400" price list. They are briefly described but the useful culture information, with the price list, is worth the 10c we charge for it. We also have lower priced but still modern *Iris* in 1950 Spring Cat. We have very few copies left but will send for 10c as long as they last. *Iris* are delivered only after flowering, from June to fall. If you live in vicinity of Los Angeles come and see our *Iris* in bloom—March to May, usually, and make your selections. This type does not do well in tropics.

Bearded *Iris* are not recommended to our customers in the tropics.

Gladiolus

How to Grow Gladiolus. Glads planted Nov. 15 to Mar. 1 in Southern California and thruout the south (a little later in Northern California and early as possible in spring in the east) are reasonably sure to escape the attack of thrips. Our glad bulbs are especially grown for this purpose, matured early and dug in August. But if you plant recently dug bulbs you will gain nothing; they will continue their rest of three months before starting.

Thrips are very small insects that suck the juices from the plant. They cause the flowers to wither or appear burned, and appear only after weather becomes warm. To avoid the damage thrips do, four measures are effective. Plant early. Plant clean, treated bulbs. Keep them reasonably moist and well cultivated, with no weeds. Dust with Chlor-dane. A hand duster can be bought from most local feed or seed stores. Probably Chlor-dane also. Chlordane tho toxic is safe to use but do not use on vegetables. Be careful not to breathe much of the dust. It also kills ants and other pests.

Dust Gladiolus 3 or 4 times before flowering. Begin when plants are 6" or 8" tall.

Many will prefer to spray instead of dusting. For a spray use "Thripocide" which we list under "Garden Supplies," 4 oz. for \$1.15 post paid.

Plant large bulbs (really "corms") 4" or 5" deep. Half inch bulbs, 3". Bulblets 2". Twice their diameter apart. Rows 20" apart, in full sun exposure. Best soil is sandy loam but they do very well in heavy soils, especially if leaf mould and compost is added. Alkaline soils do not produce good Gladiolus. Correct them by addition of peat or leaf mould. Use only well decayed manure, if any. Spoonit is an excellent mildly acid fertilizer.

Sizes. Size No. 1, 1½" up. No. 2, 1¼" to 1½". No. 3, 1" to 1¼". No. 4, ¾" to 1"; No. 5, ½" to ¾". No. 6, all under ½". In the following list L. means large, No. 1 or 2; M. means medium, No. 3 or 4; S. or small are No. 5 or 6. Smallest sizes bloom and often bulblets. No. 2 and 3 are preferred for growing commercial cut flowers.

Prices are for one bulb. Multiply by 10 for the price of one doz; 6 at doz. rate. 100 cost 70 times the cost of one or 7 times the cost of one dozen. In the following list we have added a number of the very latest sorts that you will all want to try.

Ballad. Ruffled, light rose, salmon tints. Late. All sizes, 10c.

Barkarole. Clear, light orange. Ruffled. L. 8c.

Birch Red. Best new deep red. L. 45c.

Burma. Heavily ruffled, deep rose red. L. 8c.

Capeheart. Early, salmon rose. L. 6c.

Chamouny. Beautiful bright rose with silver edge. L. 8c.

Elizabeth The Queen. Deeply ruffled, large flowers. Many consider it the most beautiful gladiolus. L. 10c.

Ethel Cave Cole. Florists favorite light pink. Large flowers, early and near perfect. L. 6c. No. 1 and Jumbos for 8c. They are a little earlier.

Evangeline. Palmer origination, (Greta Garbo x Elizabeth The Queen). Ruffled, light rose. Up to 5½ ft. tall and sometimes 12 open. One of the most beautiful varieties. All sizes sold for \$10.00 in 1948 and for \$1.00 last year. No. 3 bulbs for 45c.

Florence Nightingale. A new pure white that many think is the best of all. 30" flower head, 8 or more open, 5½ ft. tall. No. 3 bulbs, 20c.

Gold Dust. Very early, clear yellow. L. 10c.

H. B. Pitt. Very fine, large orange pink. L. 10c.

Huntress. Very early, large, ruffled lavender. A fine florists glad. L. 10c.

Jacinth. Color of this gem, an orange tone. L. 8c.

June Bells. Tall, ruffled white, early. 15c.

Los Angeles. An old timer, once the popular cut flower in this market. Useful in landscape because of profusion of flowers. I have seen as many as 100 from one bulb, due to numerous side branches. Plant 6" apart and water freely for best performance. A good winter forcer in greenhouse. L. 6c.

Margaret Beaton. Pure white with scarlet blotch. L. 6c.

Miss Wisconsin. Best medium rose. A florists' favorite. L. 6c.

Ogarita. Salmon. Very tall, straight, vigorous. Try crossing with Los Angeles. L. 8c.

Pacifica. Very early tall, large white. Fine for cutting. L. 7c.

Red Charm. The favorite florists' pure red. L. 7c.

Red Unknown. A fine early red. Name unknown. 6c.

Snow Princess. A very fine early white. L. 7c.

Spic and Span. Ruffled deep pink. Very vigorous and even bulblets give nice spikes for cutting. L. 20c.

White Gold. The largest, tallest, early creamy white. The only criticism I've heard is, "too large." It's a one spike bouquet. L. 8c. Jumbo, 12c.

Assorted. Made up from lost labels, surpluses, accidental mixes, etc., and is likely to contain anything, but is not a hand made, balanced mixture. No. 1 and Jumbo bulbs, 75c doz. L. 60c doz. Nos. 1, 2, and 3 mixed for 50c doz. or \$3.50 per 100.

Mixed Bulblets. \$1.00 per pint.

Our *Gladiolus* did especially well last year and very large bulbs were dug. Many are too large to pay increased cost of postage on. On f.o.b. express orders we will send as many **Jumbo Bulbs** as we can in place of L. sizes. On most bulbs listed as L. we can send large No. 1 to Jumbos for 2c each above listed price. That 2c will about pay extra postage.

Maricas

The Maricas have long been favorite house plants in the north. They have pretty flowers on a leaf-like scape. Following the flowers, two young plants take their place and become so heavy that the scape bends over to the ground (in the garden, here) and the plants take root, a foot or more from the mother plant. Hence they are sometimes called "Walking Iris" or "Apostle Plants." They usually flower Jan. to March.

Culture: They are shade plants and require a soil of peat, sphagnum and/or leaf mould with a little sand or rich sandy loam. Keep moist and growing all year. They are hurt but not killed by 20° but thrive beside African violets and Orchids in the greenhouse. Read about them in Mrs. Wilson's, "Enjoy Your House Plants."

Marica gracilis. Smallest variety. 5" pot. 75c.

M. northiana. A larger plant, larger, better flowers but a slow propagater. 7" pot. \$2.50.

M. hybrids, Northiana x gracilis. We have raised some fine hybrids from this cross that have flowers equal or better than Northiana in size and form.

They are more profuse with flowers than either parent and midway in size of plants. They propagate far more rapidly than even *gracilis*, forming large clumps with consequent increase of flowers. \$1.75. Small plants, unlikely to flower this year, \$1.00.

LILY FAMILY — Liliaceae

The type species is *Lilium*, or true Lily. Many call *Crinums*, *Callas*, *Cannas*, or any bulbs "Lilies," but this is an error.

Gloriosa. Climbing Lily. The flowers resemble true lilies but surpass most of them in their gorgeous beauty and high coloring. They propagate by tubers instead of bulbs. The stem is branching and heavy and must be supported.

Culture. They must have sandy soil, full sun or slight shade, plenty of water, perfect drainage. We usually plant before March 1, but sometimes as late as May. They need a long season. Plant 4" deep. Horizontal position. In the north they may be started early in pots and shifted. Do not break earth ball when shifting. They may also be grown in pots.

Gloriosa rothschildiana. It deserves the name **Glory Lily**. Very vivid colors, red with yellow markings, turning later to deep red and then deep rose. 4 ft. tall. Two sizes, \$1.50 and \$2.25.

OXALIS FAMILY — Oxalidaceae

Culture. Oxalis do best in sandy soil. They do very well also in poor soil. In pots, the drainage should be good and some coarse sand in soil will help. Most Oxalis like nearly full sun.

Oxalis brasiliensis. Bright magenta fls. Starts growing in winter and continues to late spring. Bulbs, 25c ea.

O. crassipes. Tuberous. Bright rose fls. Evergreen and everblooming. Usually starts slowly. 15c ea. \$1.00 doz.

O. crassipes alba. White variety of above. 25c ea. \$2.00 doz.

O. Regnalli. Large, truncate leaves, reddish on under side. Trifoliate. Nearly or quite evergreen and everblooming. Large white fls. Tuberous rooted. 35c ea.

THE CALLA LILY FAMILY — Araceae

This family contains the so-called Calla Lilies or Zantedeschia, Fancy Leaf Caladium, Sauromatum, Amorphophallus, Arum, Drunculus, Anthurium, Spathiphyllum, etc. All are shade plants and need acid soils.

Zantedeschias are not true Callas, tho this is their common name. **Culture.** At this time and up to Apr. 1; you may plant or pot the pink and yellow callas. They need a mildly acid soil of sandy loam and peat. In pots, cover only 2" but in the ground in Calif. or the deep south, they may be planted about 3" deep. They need about half shade. Keep barely moist until growth is well started then water freely. Cool temperatures suit them best.

Zantedeschia rehmanni elegans. Improved light pink form. These are a large size, not small unimproved type that is offered at low prices. 50c ea. 3 for \$1.25.

Z. elliotiana. Deep golden yellow. If not given enough sun they become tall and spindling and fail to flower. 30c ea. 4 for \$1.00.

Sauromatum guttatum, var. venosum. Snake Lily. The narrow, 1' to 2', long spotted spathe, undulating, appears to wriggle alarmingly. I've seen persons jump on first sight. Hardy only if well protected and mulched. May be grown in greenhouses. Must have acid soil, shade. Jumbo bulbs, \$2.00. Large, \$1.50.

Amorphophallus Rivieri. More correctly it is **Hydrosme Rivieri.** Devil's Tongue. To 4' tall, very broad decompound leaves. Flower spathe, 1' long, green, spotted white and purple. Like all aroids, they are shade plants, requiring acid soil. Hardy in south under trees. In north they are grown in large pots or tubs. Foliage of this and Sauromatum is richly tropical. Usually, only largest tubers of these will flower. They frequently fail the first year, therefore we offer ours that are on small side, with the saving in cost, it will pay to grow them on and the foliage is worth the cost. 1½"-2", \$1.00. 2"-2½", \$1.50. 2½"-3", \$2.00.

Anthurium and **Spathiphyllum** are close relatives and formerly in same genus. Formerly too high priced for most of us but now more plentiful and within our reach. Flowers are much used by florists. The colors range from coral, orange, pink, red to sometimes white. The waxed or lacquered appearance on these colors gives a resplendency unequaled. Mature plants flower every two months and each flower lasts 6 weeks or more.

We ship Anthuriums and Spathiphyllum in the clay pots by express, f.o.b. This is safe in winter but delivery may be delayed in very cold weather if the customer so directs.

Anthurium andraeanum. Shaffer Hybrids. These are considered to be the best Anthuriums. Fls. up to 6" long, orange-red, varying to rose or white. 6" to 8" plants that should begin to flower at 10" to 12". Sometimes they flower even at 8". Assorted colors, \$3.75. Red, \$5.00. Shaffer's Best Red, \$6.00. Blooming size, about 12", assorted colors, \$6.00. Large plants in bloom, \$7.50.

A. scherzerianum. This species does not make as large plants or flowers as andraeanum, but they are interesting and pretty. Their advantage is their greater hardiness. They are easier for amateurs and as house plants. They are not quite so demanding about

temperature and humidity. They flower from very small sizes. Blooming size, \$3.75. We have a few of the var. *Atrorubrum*, dark red, for \$6.00. These are in great demand and the plants on hand are small. If you can wait until about Apr. 1, we can send larger plants.

A. crystallinum. A beautiful foliage plant that does not need flowers, tho it has green fls. Leaves are cordate-ovate to 10" wide and 14" long, deep velvety green, prominently veined white. Pale rose on under side. Small plants, \$3.75.

Spathiphyllum clevelandi. Close relative of Anthurium and formerly so classified. Fls. are white and freely produced. Very easy to grow. Blooming size, \$3.75.

Culture of Anthuriums and Spathiphyllums. These are tender tropical plants, suitable only for pot culture. Soil formula: We prefer to use about $\frac{1}{4}$ old osmundine; $\frac{3}{4}$ peat. Add a thin layer of sphagnum on surface to prevent eroding the surface when watering. Set plant low in an oversized pot and as it grows, new roots are formed on compost surface which should be covered with more sphagnum. When compost surface reaches rim of pot, shift to larger pot. Fertilize with Spoonit or liquid manure.

Fancy Leaf Caladiums are the most gorgeous of foliage plants. Every leaf is a flower as vivid in color as a rose, tulip or tigridia. In 1951, an early freeze took most of our Florida growers crop and we were unable to fill our orders. This year we could get only 7 varieties but they are dug and are stored in a greenhouse and we will not disappoint early customers. We will pack your order and mail as soon as safe. If you want to pot them early for greenhouse growing they can be sent by express. Store tubers at 60° to 70°.

Caladiums like heat and must have it. The best starting and growing temperature is 85° or higher. They will, however, start and grow in a comfortably warm room. Soil formula: $\frac{1}{3}$ rich sandy loam; $\frac{1}{3}$ well rotted dairy manure; $\frac{1}{3}$ fine, rotted leaf mould or peat. Add a tablespoonful of bone meal to a 5" to 7" pot. Set bulbs 1" under soil surface. We prefer to have only pure peat or sand to touch the bulbs. Don't forget perfect drainage. Read Potting Directions. Keep barely moist until sprouts appear. Water liberally when in full growth. If you allow them to become dry, foliage will be lost. We start Caladiums, Begonias, Gloxinias, Achimines, Haemanthus and a lot more in the same house where we grow Saintpaulias, Cattleyas, Anthuriums and other tropicals but later Begonias and Achimines are moved to a cooler greenhouse or a lath house. They are shade plants, about 25% sun exposure is right.

Houdyshel Method. I have my best success in starting and growing Caladiums, Gloxinias, Achimines, Eucharis and most shade, acid loving plants in a mixture of peat and sphagnum with a little sponge rock or sharp sand. You may prefer to add a little rich soil, a tablespoonful each of dairy manure and/or bone meal, but fertilizer not in contact with bulbs. When growing, Caladiums need frequent feeding. I prefer to fertilize after some growth is made, with Spoonit solution. Note additional advice under Saintpaulias, Achimines, etc.

After June 1, often earlier, it will be easy to maintain right temperature for starting or growing Caladiums. When growth is well advanced they will also have more tolerance. In our very dry climate, growing out doors is difficult but possible if well watered daily.

Greenhouse culture is ideal. In the fall, when outer leaves begin to yellow, dry them off. When the foliage is lost the pots may be laid on their sides. They may be stored in pots in a warm room, never colder than 60°. The greenhouse and warm living rooms are good places to store tubers. Start tubers in only slightly moist compost. Give constant moisture when in full growth.

1. **Candidum.** Snow white leaf with dark green ribs.
2. **Edith Meade.** Snow white, with green border and red ribs.
3. **Triomphe de L'Exposition.** Velvety red center, shading to narrow green border.
4. **D. M. Cook.** Rumpled leaf with deep plum red center.
5. **John Peed.** Brilliant red leaf with dark green border.
6. **Dr. T. L. Meade.** Deep red with black, velvety sheen.
7. **Lord Derby.** Rose leaf with dark green veins and ribs.

These are probably the best seven varieties. You may order by the number attached above or by name.

Prices. 50c ea. or complete set of 7 var. for \$3.00. These are not the small tubers offered at lower prices but will run from 1½" diam. to 2½". Assorted varieties when offered at low prices are likely to be small tubers of seedlings and much inferior in beauty of foliage.

If you wish to start tubers early, which you can do if you have a room or greenhouse with a temperature of 75° to 85°, we suggest you order a good supply of peat and sphagnum at same time. We will pack tubers in the center of this good insulation and ship by express, f.o.b.

THE GESNARIA FAMILY — Gesneriaceae

Includes Gloxinia, Smithiantha, Isoloma, Episcia, Streptocarpus, Saintpaulia or African Violet, and ending here with Achimenes. Many of these have received other names by botanists. We use the valid names approved by **Gentes Herbarum** but in order that you do not order plants that you already have we try to give the synonyms.

Gloxinia. The correct botanical name is Sinnigia. They are natives of tropical Brazil, which indicates their culture. Dormant tubers can usually be had only from Jan. to April. Some sorts are likely to be sold out in late Mar. Order early or name substitutes.

How to Grow Gloxinias. If you need to store tubers it must be in a warm room, about 55°, packed in perfectly dry peat or sand, not exposed to air or moisture. Pot the tubers in Feb. or Mar. April will do if you can get the tubers. Read Potting Directions on a previous page. Soil formula: ⅓ of each peat, fibrous loam or wood's earth and coarse sand. This is a good soil but I prefer the "Houdyshel Method" described under Caladiums.

A good starting and growing temperature is 60° at night and 70° in day time. We run this nearly 10° higher. Gloxinias are shade plants but they need the proper amount of sun to make well shaped plants and to bloom well. A stocky, vigorous blooming plant is situated correctly. A leggy plant is not getting enough sun.

Keep Gloxinias moist, not soggy when starting and increase moisture when growing well. It is a little better to use tepid water when starting tubers.

If you get water on the foliage, and then sun falls on them before they dry, a spot may result. When well shaded, no harm results. They require high humidity. Protect plants from wind and cold drafts. They are pot plants, for the house or greenhouse and are not garden plants here.

After flowering, gradually withhold water. When tops are dead, give only enough to prevent shriveling of tubers. When growth begins again, gradually increase watering.

We offer American grown 1"-1¼" tubers in the following sorts: **Blanche de Meru**, rose, white throat; **Emperor Frederick**, scarlet, white border; **Emperor William**, violet, white border; **Etoile de Feu**, scarlet; **Mont Blanc**, pure white; **Prince Albert**, frilled, dark violet; **Princess Elizabeth**, blue, white throat; **Roi des Rouges**, frilled, dark crimson; **Tigrinia**, from light rose to dark lavender. Characteristics are the small tiger spots; **Tigrinia**, **Pink Edge**; **Tigrinia**, **Crimson Rose**; **Violaceae**, soft violet.

The above are the complete list of Gloxinias grown by the famous California growers, Vetterlee Bros. They are superior to imported tubers and cost us more. Price 35c ea. 6 for \$1.75 if all one variety or if assorted and unlabelled. **Complete Collection**, 12 var., labelled, \$3.85.

New Hybrid Gloxinias. Pointille. Large flowers in many shades but all are spotted in a different way from Tigridia, all are beautiful and some are astonishingly so. Very large, 2" tubers, \$1.00. 6 for \$5.00. **Frederick Benary**, Scarlet, white throat; **Rose Sensation**, brilliant carmine rose; **Swiss Emblem**, scarlet and red. These three are good flowering size usually 1" or over. Price \$1.00 ea. 6 of one kind only, for \$5.00. One of each of the 4 new varieties, labelled, \$3.85.

Collection of all 16 named var., \$7.50.

Gloxinia Seed, saved from our named varieties, mixed. Seedlings flower in about 5

mo. **Culture:** We plant in large clay pans, standard pots or wood flats. Soil, either fine peat, milled sphagnum or mixture of both with a little sand added. Be sure this is evenly wet thruout. Level the surface and scatter seed thinly as all grow. Cover very lightly with very fine peat. If covered by a pane of glass the seed is likely to come up before watering is necessary. Water carefully to avoid erosion. Subirrigation is best. When they begin to crowd, you can transplant into 3" or 4" pots directly or into 2" pots and shift later. Per packet, 50c. 3 for \$1.25.

Streptocarpus are very close relatives of Gloxinias but are fibrous rooted and can only be moved as growing plants. The culture is much the same except as to temperature. They thrive in a cool house and are easily grown in a lath house in summer. The color range is similar. The flowers are smaller and freely produced. They are followed by long twisted seed pods, hence their name. They are easily grown from seed, which save, as we have no seed for sale. We pack plants in their own soil and ship carefully which adds to the cost. Order early. They cannot be moved in winter. "**Assorted hybrids**," \$1.00 ea.

Episcias are fine foliage plants and have attractive flowers also. Some are trailing plants and are nice in baskets in the same compost as advised for Achimenes, Gloxinias, etc. The culture is similar. They are fibrous rooted plants and must be moved as plants, out of pot—or loose rooted with a little of their proper compost. We offer only small plants. Delivery any time of year when weather permits.

Episcia chontalensis. Lvs. Marked purple. Fls. white to lilac; **E. coccinea.** Lvs. metallic green; **E. lilacina;** **E. splendens;** **E. sp. Sport;** **E. variegated.** We cannot complete descriptions. Price, small plants, six varieties, \$1.25 ea. No quantity discount.

Smithiantha. (Naegelia) are fine tuberous foliage plants. The cordate leaves are covered with soft hairs that give them a velvety appearance. Their colors change when viewed at different angles. The attractive flowers are tubular in form. **Culture** like Gloxinias and Achimenes. Use 5" pots.

S. hybrida, "Golden King," yellow flowers.

S. hybrida, "Orange King," orange flowers.

S. hybrida, "Orange Delight," different in foliage and flowers.

Tubers of all varieties, \$1.10 ea. The fresh dug tubers will be delivered in spring.

Culture like Gloxinias, Achimenes, etc. Delivery in spring as soon as dormant.

Isoloma. (Tydaea). This genus has rather long, tubular flowers of stunning appearance. The stems are trailing and we prefer basket culture, the same as for Achimenes in every way. Tuberous. Delivery in spring as soon as dormant.

Isoloma hirsutum. Hirsute leaves and stems. Free flowering. Tubers, 75c ea.

Isoloma hybrids. Choice varieties. 60c ea.

Achimenes

Achimenes are again becoming one of our most popular house plants. They are stemmed plants, usually trailing in habit and therefore ideal for basket culture. Flowers are like tiny Gloxinias. The tubers are very small and resemble tiny pine cones. They increase rapidly.

Culture is very similar to that of Gloxinias. In a 5" pot, 1, 3 or 5 tubers may be planted. Keep them slightly moist until they come up and water more liberally when in full growth. This class of plants must be kept moist at all times and therefore drainage must be perfect to avoid soginess. If the potting medium is peat, milled sphagnum and sand the drainage will be good.

A most satisfactory way of growing Achimenes is in wire baskets. Line the baskets with wet sphagnum. The best compost is peat and/or milled sphagnum. Some use coarse leaf mould. One can plant several tubers in an 8" basket. We use 16" baskets for about 30 or more tubers. Smooth the upper surface and place tubers around perimeter and in center. Cover about $\frac{3}{4}$ " to 1". Some tubers start very soon. Others may require several weeks. If tubers are broken every piece will grow but small pieces produce small plants. They should be stored in sand, peat or vermiculite at about 60°. Cigar boxes are good containers.

This year we grew a good many varieties and we have bought from American and European growers every thing that appeared good. As a result we can offer a long list, 42 varieties. This is because we like Achimenes and we know you will. We have also reduced prices.

To save space, we must condense descriptions and list all in one paragraph. You may order by name or number but present numbers differ from those of previous catalogs.

1. **Adele de la Haute.** Shell pink. 20c, 3/50c. 2. **Ambroise Verschaffelt.** Petunia purple veined on white ground. 20c, 3/50c. 3. **Andersoni.** Deep pastel blue. 20c, 3/40c. 4. **Atropurpurea.** Red purple. 20c, 3/50c. 5. **Brilliant.** Medium sized, bright red fls. 20c, 3/50c. 6. **Carmine Queen.** Bright carmine lake. 30c, 3/80c. 7. **Charm.** Small plant. Large, delicate pink fls. 35c, 3/\$1.00. 8. **Dainty Queen.** Large white fls. with lavender dot in center. 25c, 3/60c. 9. **Diadem.** Large fuschia purple. Velvety emerald leaves. 30c, 3/80c. 10. **Edmond Bossier Improved.** Striped purple, yellow center. 25c, 3/60c. 11. **Francois Cardinalis.** Rare dwarf var. Small, blue and white, trumpet shaped fls. 40c, 3/\$1.10. 12. **Galatea.** Hyacinth blue, lighter center. 20c, 3/50c. 13. **Giant Pansy. (Variegata).** Sky blue, yellow and purple spots. Rare. 35c, 3/\$1.00. 14. **Ghiesbreghti.** Large, tubular red-violet. 40c, 3/\$1.10. 15. **Harry Williams.** Upright stems to 2 ft. Cerise fls. 35c, 3/90c. 16. **Jaureguia Maxima.** Very rare, unusual and fine. Large, pure white fls. with violet tinged and veined center. 35c, 3/90c. 17. **Little Beauty.** Salmon pink. Dwarf habit. 25c, 3/55c. 18. **Longiflora Maduna.** Rose purple with white throat. Leaves veined red. 20c, 3/45c. 19. **Longiflora major, (Magnificum).** Cobalt blue, very large fls. 30c, 3/65c. 20. **Longiflora Margaritae.** Best pure white, but temperamental. 20c, 3/50c. 21. **Loveliness.** Violet fls. late. Very profuse bloomer. Dwarf habit. Rightly named. 20c, 3/40c. 22. **Magnificent.** Petunia purple fls. Beautiful, sturdy plant. 25c, 3/55c. 23. **Mauve Queen.** Violet blue. Crimson spotted, yellow eye. 20c, 3/50c. 24. **Maxima.** White, purple eye, feathered red. 25c, 3/60c. 25. **Mexicana.** Dark blue, vigorous, free flowering thru a long season. 35c, 3/90c. 26. **Milton.** Strawberry red, orange center. A beauty. 30c, 3/65c. 27. **Miniata.** Cherry red to deep carmine. Early flowering. 35c, 3/90c. 28. **Mme Geheune.** Rose purple. Attractive foliage. Easy to grow. 35c, 3/90c. 29. **Mme Georges.** Lovely shade of violet purple. Dark reddish leaves. 40c, 3/\$1.10. 30. **Patens major.** Reddish violet with white throat. Short stems. 35c, 3/90c. 31. **Pedunculata.** Orange red fls. with yellow throat, spotted red. Tall, late flowering. Looks more like a Smithiantha, (Naegelia) than an Achimenes. 40c, 3/\$1.00. 32. **Pulchella.** The brightest, best red. 20c, 3/40c. 33. **Pulcherrima.** Rich purple. May be same as Purple King. Name means, "very beautiful." It is. 20c, 3/40c. 34. **Royal Purple. (Purple King).** Petunia violet. Early flowering. Dwarf habit. Vigorous. Rapid multiplier. Considered the most desirable of all. Special price, 15c, 3/30c, 12/\$1.00. 35. **Scarlet Beauty.** Scarlet fls. on long stems. 45c, 3/\$1.15. 36. **Venusta.** Violet purple, semi-double fls. The only double. Profuse bloomer. Dwarf habit. 30c, 3/75c. 37. **Vivid.** Cerise lake. Medium late. New. 25c, 3/60c.

Collection No. 1. Assorted varieties unlabelled 12 for \$1.50.

Collection No. 2. Our selection, 10 varieties, labelled, \$2.00.

Collection No. 3. One tuber of each of the 37 varieties, labelled, listed for \$10.40. Price \$9.75.

Collection No. 4. You should have three of each. All 37 varieties, three of each, labelled and listed separately for \$25.85. Collection price. \$22.50. Delivery, as soon as weather permits safe shipment.

We suggest that you get at the same time a sufficient quantity of milled sphagnum and Holland peat. They do best in these mediums with no other additions. Get Sphagnum if you wish to plant in baskets. Six to 12 tubers will do well in a 8" basket. We will use this as insulation around the tubers and thus they can be delivered safely, much earlier.

Please allow us to substitute if you order late and we are out of a variety. It will always be an equal or better value. Name a few substitutes if you will.

P. S. We have just received word that we shall have the following. These are not included in above collections. **Limit** one to a customer on all. We shall have very few.

Cattleya. Orchid lavender with white throat. 35c.

Escheriana. No description. 35c.

Master Ingrami. Crimson red fls. 35c.

Masterpiece. Rich medium purple. Bronze-green leaves, red stems. 50c.

Nessida. Amethyst violet, cadmium center. Another "most beautiful of all." 50c.

AFRICAN VIOLETS — Saintpaulias

The latter is the correct botanical name. They are the most popular of all house plants at the present time and they are likely to retain this eminent position in popular favor indefinitely, as they deserve it.

Saintpaulias were discovered by Baron von Saint Paul who sent seed to Europe where they first flowered in 1893. They are natives of the Usambara district of Tanganyika, equatorial east Africa. Tanganyika includes Lake Victoria, source of the Nile, on the north and extends 12° south. It is entirely in the tropical zone. It is always summer, with almost no variation or seasonal changes in the climate. Due to the hot Indian Ocean on the east, the humidity is high.

They were discovered by the Baron in two places, both in tree covered areas. In one at an elevation under 150 ft., they were found both in rich soil full of humus and in the fissures of limestone rocks. In the second place, they were growing on granite rock at an elevation of 2,500 feet.

The mean average temperature at lower elevations is 80° with little variation on either side. It is a "mean" temperature for the white races and few live there. At higher elevations the mean average is about 70°, which is not uncomfortable, but monotonous.

The Saintpaulias soon spread from Europe to most countries where house plants are grown. Their popularity was instant and always growing in intensity. Mrs. Wilson, in her book, "The African Violet" records the first real test of their popularity. In the fall of 1946, an Atlanta, Ga., nursery sponsored the first African Violet Show. The thousands who attended from everywhere created a traffic problem which extra police could scarcely handle. Later, someone in Manheim, Pa., grew a plant with an off-white flower. It was advertised as a yellow, and created a furor. Collectors from many states visited Manheim to see it, to buy plants or leaves. Local citizens were besieged by questions to the point of much discomfort. The myth of a yellow Saintpaulia still lives and we get inquiries for them nearly every day. We would like to answer this question once for all. But it will not be for always. It will crop up for many years.

There is, there never has been and there probably never will be a yellow Saintpaulia.

Culture of Saintpaulias. Climate and soil conditions in the habitat of a plant supply a good starting point for the discovery of their proper cultivation. Plants possess a variable degree of tolerance and adaptability. Often a plant or an animal, transplanted to new conditions do better in the wild or under culture in the new situation. For example, rabbits in Australia, the English Sparrow in America and Cactus in Africa appear to have gained by transplantation.

African Violets under the hand of man have been vastly improved and many new colors and forms have been produced. Grotei, the climbing African violet, and other new species have been discovered. They have also adapted themselves to somewhat different conditions. They are strictly house plants only.

The advised **range of temperatures** for winter is 60° at night and 70° daytime. They might do a little better at 10° higher but that is uncomfortable for people in winter clothing and summer brings about 10° increase.

The plants do not like sudden changes nor great changes. A nearly even temperature, within a limit of 12° between high and low is better. They are bound to have a greater range sometimes and if not more than about 15°, they are unlikely to lose their flowers.

Loss of flowers is the first evidence of something wrong. This may result from sudden changes, drafts, too high a temperature in summer and in winter it may result if temperature goes much under 60° for more than an hour or two.

African Violets grown at a congenial temperature are usually killed if subjected to lower than 40°. It may be that if kept at 50° for some time they might then survive a lower temperature. But they neither grow nor flower at 50°. Therefore it is impossible for us to send you plants by mail in winter, to a cold climate. In favorable weather we can usually send to warmer sections of the south. Express is safer. Nor do we ship on very hot days in summer. We plan to ship so that they do not arrive to you on a week end and thus remain in a carton a day or two.

As growers seeking to sell plants to amateurs, we are interested in your success and for that reason we plan our shipping dates as explained and tell you how to grow them when you receive them. It is not enough that you receive nice plants in bud or bloom. They must continue to grow and bloom for you. Some growers overlook one factor. Mrs. Rector in her fine book on African Violets relates the practice of one grower who keeps his greenhouses heated to 80°. The plants grow more rapidly and flower much younger at this temperature but when transferred to living rooms, most of the old top dies off and the plants do not flower again for from 6 mo. to one year. Our Saintpaulia Greenhouse is heated and air conditioned. The thermostats are set to regulate the temperature range to that which is usually found in living rooms. Thus there is no great shock to set the plants back when moved. Many of our customers report first that plants are received in excellent to perfect condition and later that they are still flowering.

Watering. Do not ever use cold water. The water should be near the room temperature and never over 10° lower or higher. Most of our watering is done by spraying with a hose. The plants need to have the foliage sprayed and it does not spot the foliage if no sun falls on the foliage before they dry off. If late in morning cover plants with newspapers after watering, until dry. The interval between waterings should be long enough to permit the top soil to become slightly dry.

Very many advise to set the pots in a pan of tepid water, and to remove when the surface becomes moist. This is an allowable practice but it requires supplementary procedures. One must sometimes spray the foliage and also water from the top of pot part of the time. Culture advice for any house plant usually says, "Be sure the drainage is perfect." But sub-irrigation does not result in perfect drainage. Not enough water is likely to drain away when removed from a pan of water. Most of us must use hard water containing soluble alkaline or other salts. When subirrigated these salts remain in the soil and are added to by each irrigation. Nearly all cultivated plants, particularly shade loving plants, require some leaching of the soil to remove excess soluble salts. Continued too long, subirrigation may raise the soil pH sufficiently to stop flowering.

Good **ventilation** is needed by all plants but Saintpaulias do not like drafts. Slow movement of air currents are more conducive to their comfort.

Soil formulae. Some growers sell prepared soils. Probably they are nearly all good. But the plants have a considerable tolerance and do well in a wide variety of soils. They should be at least mildly acid in reaction and a type that will drain easily and quickly. Heavy clay soils, therefore are not good.

We use about one half oak or redwood leaf mould and one half sandy loam or good loose garden loam. To this is added enough sponge rock or coarse sand to make the soil gritty and aid drainage. Fine screened peat is as good or better than leaf mould. It is not at all necessary to buy prepared soils.

Fertilizers. We use only Spoonit and recommend it to be applied once a month, on a day following watering.

Sun exposure. Most of the advice one receives over-emphasizes shade. Lack of sufficient light intensity seems to us to be one of the most frequent causes of non-blooming. All shade plants need a certain amount of modified sunlight to make them flower. In the winter, the sun is at a low declination. Its rays must pass thru several times the thick-

ness of atmosphere penetrated at noon in the summer when the sun is directly above or at "high declination." Very little shading is needed on the greenhouse in winter. Treated thus our plants bloom profusely all winter. Very likely, plants in a south window, anywhere in the north temperate zone, in winters, will be sufficiently shaded by a thin muslin curtain. Remove the curtain on dark days.

But summer sun is much stronger. One must give more shade. It should not, however, be too heavy. The plants need much light. The color of the foliage will tell you what they can endure. When healthy plants have light, yellowish foliage they probably receive too much sun. Medium green is about right. Very dark green foliage indicates insufficient light and lack of flowers corroborates it.

Humidity. Saintpaulias bloom better in a relative humidity of 60% to 70% altho they live and appear healthy at a much lower degree. At this moment the humidity of our violet house is 62%. In our kitchen, it is 28% at 80° temperature. In other rooms it would be lower. Heated rooms are likely to be 25% relative humidity or less, at times. It would be uncomfortable for us to live in a room sufficiently humid for violets. One can localize a higher humidity around the plants by setting the pots over a saucer containing gravel and sand and filled with water which does not quite touch the pots. Mrs. Rector's book, "How To Grow African Violets," (see Garden Reference Books) suggests a tray made from a chick feeder, with wire guards removed. Many sizes are available at feed stores. In the bottom place sand, gravel or coke with water. Plants set in these trays will have a sufficiently humid atmosphere. Most of our houses would be more comfortable for us if the humidity were higher in winter.

Pests. Be sure to keep your plants free of insect pests. One of the most common on house plants is the **mealy bug**. Examine plants frequently for pests. Mealy bugs look like tiny specks of cotton. One way to remove and kill them is to use a bit of cotton on end of a toothpick. Dip the cotton in alcohol and pick off the bugs. Do not touch foliage with the alcohol. Hexotine, used as a spray or dip is effective. A badly infested plant should be discarded or at least removed from vicinity of all other house plants. Hexotine and all effective insecticides are very poisonous. You must not breathe the fumes. You must avoid skin contact.

Cyclamen mites are most destructive. The center of an infected plant takes on an abnormal appearance and changes to a different color, usually grey. It becomes rough in appearance and young foliage is misshaped. Mite spreads to all the plants and effective measures must be at once applied. An effective measure is to immerse entire plant and pot in water at 110° for 15 min. Keep water at this temp., adding more hot water. Wash shelves and pot saucers with ammonia solution. Repeat the treatment one month and again two months later.

We offer **Hexotine** under Garden Supplies. Used according to directions this spray is an effective control of mite. Several sprayings at 7 to 10 day intervals will be needed. It may cause temporary loss of flowers. The spray must be used at once when mixed. Prepare only enough for 15 minutes use. Plants may be dipped in solution of 2 teaspoonsfuls to one gallon of water.

Sodium selenate will keep plants free of all insects. It is a dangerous poison. Discarded soil must not be placed in a vegetable garden or under a fruit tree as it may thus poison those who eat the fruits or vegetables. The method of use is described in the African Violet books which we list. Read them both on this topic. Space does not permit a full discussion here for this or some of the less destructive pests and diseases.

In the following list you will find most of the latest and best. If one that you want is not listed we may have it in too small a quantity to list. Please inquire. Names in parentheses are synonyms of the listed name or the name of originator. When you order we advise that you name a few substitutes. Our stock is small on a few varieties, especially the newest ones which are often hard to get promptly.

Azure Beauty. Double. The most beautiful and the most popular of the new Rainbow Series, by Ulery. Large, white flowers with lavender or blue markings in center and on edges. Available March. \$2.50.

- Black Beauty.** (Mentor Boy Supreme). Dark purple of even tone. \$1.50.
- Blue Delight.** New. Two-tone like Blue Eyed Beauty but more pronounced darker blue eye. Very popular. \$2.50.
- Blue Eyed Beauty.** White fls with a blue overlay at the edges of petals. \$1.50.
- Blue Eyed Sue.** '51. (Hendrix.) Heart-shaped girl foliage, blue fls. \$2.00.
- Blue Heiress.** '51. Dupont seedling with girl type foliage. Huge fls. \$2.50.
- Blue Ohio.** New. Very large deep blue flowers like the Duponts but flexible leaves. Available Mar. \$2.50.
- Blue Warrior.** Good grower, blooms profusely, fls, bright blue. \$1.25.
- Bronze Bicolor.** Very bronzy plain foliage with a good deep orchid bicolor flower. \$1.75.
- Bronze Girl.** Bronzy leaves when mature. Fls red or deep violet. \$1.25.
- Bugle Girl.** (Hendrix). New. Beautiful scalloped foliage. Orchid fls. \$2.50.
- Carmen.** New. A good red. \$2.50. March delivery.
- Delight.** New. Double flowers, solid light blue. \$2.50.
- Double Neptune.** (Queen Neptune). Large, fully double flowers. Perfect form. A profuse bloomer. Dark quilted leaves of great size. \$1.50.
- Dupont Lavender Pink.** \$1.50.
- Fantasy.** Lavender, variegated and splotched flowers. \$1.75.
- Geneva Rainbow.** New. A good companion for Lady Geneva. Burgandy with white border. \$1.75.
- Gorgeous Bicolor.** Beautiful large flowers. \$1.75.
- Gorgeous Blue Wonder.** New. White background shaded with blue overlay. Profuse bloomer. \$2.50.
- Grotei.** Climbing Saintpaulia. Available about June. \$2.50.
- Grotei x Pink Girl Hybrids.** All are climbing or stemmed plants but vary in the blue tone of flowers and shape of leaves. All are very pretty. They could be called, "Improved Grotei." If you are breeding or growing seedlings, we advise that you plant selfed seed of this as the second generation should show greater breaks from this type. Also cross back to pink, for pink hybrids. \$2.50.
- Hearts Delight.** Beautiful heart shaped girl foliage. Beautiful orchid fls. \$2.00.
- Innocence.** New pure white. Underside of foliage is red veined. \$2.50.
- Jivaro.** (Hendrix). Blue Fls. Heart-shaped hairy leaves. \$2.00.
- Lacy Girl.** Dark purple. Fringed petals, almost perfectly round. Each petal is rippled and frilled. Small. \$1.50 ea.
- Lady Geneva.** Pat. Blue with white border. \$1.00.
- Lavender Beauty.** New. Lovely silvery mauve flowers. Very large. \$1.75.
- Navy Bouquet.** Very dark navy blue color. Double flower, profuse bloomer with heavy crinkled leaf. \$1.75.
- Orchid Girl.** Double. New. Excellent, large orchid flowers. \$2.50.
- Orchid Neptune.** New. Double. Orchid sport of Double Neptune. Beautiful. \$2.50.
- Orchid Sunset.** New double. One of the Rainbow series. Clear orchid. \$2.50.
- Painted Girl.** New. White centered flower with bright orchid band which extends to the middle. Available in late spring. \$2.50.
- Pink Delight.** New. Light, clear pink flowers in abundance. \$2.25.
- Pink Girl.** Small plants. \$1.00.
- Plum Glory.** New. Plum red flowers in abundance. \$2.00.
- Purity.** New white double. \$2.00.
- Purple Dawn.** New. A solid bluish-purple. A distinctly new color in violets. \$2.00.
- Purple Knight.** New. Excellent large, free flowering variety. Bluish purple. \$1.75.
- Red Girl.** Ulery's. Beautiful plant. \$1.50.
- Red King.** A rich burgundy red against velvety foliage. Does not fade. Good growing habit. One of the best. \$1.75.
- Red Velvet.** New. Two-toned red, upper petals resembling red velvet, shading to

lighter red on lower petals. A profuse bloomer. Heavy dark green foliage, veined red underneath. \$2.50.

Rose Rainbow Double. New. Not available until June. Rose and white variegated. Very desirable variety. \$2.50.

Rose Marie. New. A true rose color. Smooth foliage, very dark with reddish underside. \$2.50.

Royal Ripples. New. Flowers royal purple, deeply fringed. Foliage dark velvety green, ruffled with dark red on back. A "must" for your collection. \$2.00.

Ruby Bouquet. New. This is of very vivid ruby wine color, firm glossy dark green leaf. \$1.75.

Ruffled Beauty. New. Ruffled girl foliage with highly serrated edge. Flower similar to Red Girl. Much in demand. \$2.50.

Ruffled Queen. New. A Dupont sport. Flowers have much ruffled edges. Bluish purple. \$2.50.

Sailor's Delight. New. Light blue double. Girl foliage. Excellent. \$2.00.

Sailor Girl. Light blue flowers with girl foliage. Good bloomer. \$1.00.

Sea Girl. New double. Medium blue, excellent. \$2.50.

Sherry Girl. Beautiful dark green girl foliage. The leaves with crenate edges are most formally arranged in a perfect rosette. Blue flowers held well above foliage. \$2.25.

Snow Girl. New. Pure white with lovely girl foliage. \$2.00.

Snow Prince. New. Beautiful velvety foliage with large white flowers in abundance. We think one of the best. \$2.00.

Sunrise. Opens red; blends thru orchid to a beautiful opalescent tone. Fls are long lasting. Very outstanding. \$1.50.

African Violet Leaves. For the first time we are offering leaves. No leaves sold except those listed below. Don't ask for others, or for descriptions.

Prices. 35c ea. 3 for \$1.00. \$3.00 per doz. Add 50c extra for orders of leaves under \$2.00.

Amethyst, Amethyst Amazon, Blue Boy, Blue Boy Supreme, Blue Butterfly, Blue Chard, Blue Girl Compacta, Blue Girl Supreme, Commodore, Crystal Blue Dbl., Dainty Maid, Dark Blue Fringette, Dupont No. 3, Dupont Silver Pink, Dbl. Blue Boy, Dbl. Blue Boy Supreme, Freida, Gorgeous, Geneva Star, Gipsy Prince, Gipsy Princess, Gipsy Queen, Harvey's Giant, Diplotricha (Kewensis), Lavender Pink Princess, Marine, Maroon Brocade Dbl., Merkel's Giant Blue, No. 32, Orchid Wonder, Orchid Beauty, Old Lace, Red-Lavender Fringette, Rosebud Dbl, Ruffles, Sapphire, Sky Blue, Tu-Tone Dbl., Von Detrick, White Queen, Wonder Star.

BEGONIA FAMILY — Begoniaceae

Tuberous Begonias and How to Grow Them. Tuberous Begonias are wonderfully attractive plants for pots and baskets or in the garden. Their popularity is modern and results from recent improvements of their flowers in color, size and form and the great increase in the number of types offered. Begonias respond generously to the skill of the hybridizer and take on the forms and closely imitate the flowers of Camellias, Carnations, etc.

The flowers of Begonias are monoecious. This means that the individual flowers are not perfect—containing both male and female parts but that there are male and female flowers, separately produced on the same plant. The large terminal flower is a male with a stamen. On each side is a smaller female flower with pistil and ovary. If one wishes to produce seed, the pollen from the stamen is placed on the terminal stigma. Even an amateur can produce interesting forms by crossing the types. Seedlings may be grown on a thin layer of sifted compost on top of a porous brick and the brick set into a shallow pan of water. Or place seed on the surface of wet peat in a pot and cover with glass. Watering of plants when necessary must be done by setting pot in tepid water.

When large enough, seedlings may be picked up by a toothpick and potted into 2" pots of peat. Continue to water by setting pots in a pan of tepid water.

If Tub. Begonias are potted at once when received they must be watered very little until they start to grow. The better practice is to start them by laying the tubers on top of slightly moist sphagnum. They may be covered just slightly, with the concave side containing the "eyes" only partly hidden. Keep them only slightly moist at a temperature of 60° to 65°, shaded.

When the top is an inch or more in height it may be removed with a bit of the compost into its pot or basket. The practice of merely storing the tubers and potting them when they start to grow is good. The heated, dry air of a living room is a poor place to store the tubers, to start them or to grow plants.

The soil for Tub. Begonias may be $\frac{3}{4}$ humus and $\frac{1}{4}$ sand or very sandy loam. For the humus use $\frac{2}{3}$ peat or leaf mould and $\frac{1}{3}$ well rotted, old dairy manure. All should be well mixed and fine in texture. Soil should be acid, pH 6.5. If not sufficiently acid, add more peat. The addition of small pieces of charcoal or a tablespoonful of soot is useful. The "Houdyshel method" for potting and growing, as described under Caladiums, is good.

Varied diet for all plants is best. Alternate Spoonit, liquid manure and soot water, handful to 2½ gal. water, is a good regime. Begonias are good feeders. Feed little and often. Spray plants well, daily. They need only half shade, a cool moist situation. Avoid full sun or full shade. It is best to shift to outdoors when warm. The tubers usually live over winter in So. Calif., but it is better to dig, dry and store here, and necessary in colder climates. Tuberous Begonias do not do well in the tropics, they are semi-tropical.

The best Tuberous Begonias are grown by two famous Capitola, Calif., wholesale nurseries. Flowers of their origination were illustrated in color on five full pages of Life Magazine on Sept. 18, 1950. Note the gorgeous illustrations of Red Triumph, Sunset, and Picotee. The tubers we sell are the product of these nurseries. Imported bulbs produce very poor flowers, smaller and only semi double. We sell the best size 1¼"-1½" diam. for 5" pots. The size of the flowers does not depend on size of tubers but this size makes smaller plants than the 2" tubers. Our named varieties, Red Triumph, etc., are large tubers and if not to be shifted to outdoors will need 7" pots. It is easy to shift to larger pots if they grow too large. The Lloyd type should be planted 3 to an 8" wire basket.

Prices Reduced

We have grown imported Belgian and Holland Tuberous Begonias to test their quality and to compare with the California grown. I have never seen an imported tuber produce a good flower. The California grown varieties have been improved to a degree very little short of perfection. But since retail dealers can buy imported tubers for much less, many are sold. This year California growers have a bigger and better crop than ever before and we are able to reduce our prices 20% to nearly 30% on most varieties. This should encourage you to plant the California tubers.

Please note. Many customers order 12 different kinds of bulbs, separately labelled, at the doz. rate. This is not as we price them. If separately labelled you must pay the single rate. Six of one kind only may be bought at the dozen rate, or 6 assorted of one type.

Giant Double Camellia Flowered. Offered in 11 colors, White, Pink, Rose, Crimson Rose, American Beauty, Yellow, Apricot, Salmon, Orange, Scarlet, Red. Price 25c ea. Six, one kind only or assorted, \$1.25. The 11 var., in one bag for \$2.30.

Giant Double Carnation Flowered. This type is similar but has fringed petals. The flowers are like huge carnations. 9 colors, white, pink, rose, Crimson rose, yellow, apricot, salmon, orange, scarlet. 25c ea. 6 of one kind or assorted for \$1.25. All 9 colors in one bag, \$1.90.

Giant Double Picotee. Also similar to Camellia Flowered but petals are edged white.

5 colors, pink, rose, salmon, apricot, red. 25c ea. 6 of one kind or assorted, for \$1.25. All 5 colors in one bag, \$1.15.

Double Hanging Basket or Lloydii. Smaller, double fls. on pendulant stems. Nice in pots, hanging baskets or rock gardens. 9 colors, red, white, rose, scarlet, pink, orange, yellow, salmon, apricot. 25c ea. 6 of one kind or assorted, \$1.25. All 9 colors in one bag, \$1.90.

Giant Single Crispa or Frilled. Very large, profusely frilled and ruffled, single flowers. 9 colors, red, rose, scarlet, pink, salmon, apricot, yellow, orange, white. 25c ea. 6 of one kind or assorted for \$1.25. All 9 colors in one bag, \$1.90.

Giant Single Marginata. This is a two toned crispa type in 2 colors, white, edged pink, and salmon, edged scarlet. Either color, 25c. 6 of one color or assorted, \$1.25.

Giant Single Cristata. Derived from Crispa but less frilled. Each petal bears a comb-like crest. Very new and novel. Assorted colors, 25c ea. 6 for \$1.25.

Begonia Evansiana. This is the Hardy Tuberous Begonia. We know that 20° does not injure it but do not know its limit of frost endurance. It is sometimes grown in pots but outside shade garden is its ideal place. Plants grow to 2 ft. with typical begonia foliage and a multitude of flowers. Sizes as available, 50c ea. 6 for \$2.50. Northern customers who try it for hardiness please report in 1953. Order before Apr. 1 as about that time, sprouts may prevent sending.

Begonia Collection No. 1. One each of all varieties and colors above listed would cost \$12.00 at single rates. Price, complete collection, 47 varieties, \$10.00.

Named varieties of Tuberous Begonias. The following are the most gorgeous creations of Tub. Begonias ever produced. "Out of this world," is an overworked phrase too often effusively used. But it really fits these named varieties. They are unbelievably and indescribably beautiful. Therefore I can only tell you their color and the class to which they belong, with something about the size.

Autumn Glow. Extremely large cristata. The crests are deep copper contrasting with the apricot of the rest of the flowers. Up to 10" wide.

Fascination. A crispa flower, white with a pink line on the edge, or picotee edge.

Red Triumph. A ruffled camellia type of ruby red with a velvety texture. Very large flowers.

Sunset. Profusely frilled crispa type, light copper with scarlet edge.

Santa Ana. Ruffled camellia, orange.

Santa Barbara. Ruffled camellia, yellow.

Santa Clara. Ruffled camellia, apricot.

Santa Cruz. Ruffled camellia, red.

Santa Margarita. Ruffled camellia, pink.

Santa Maria. Ruffled camellia, white.

Santa Paula. Ruffled camellia, salmon.

These are not graded to size but all are large enough to make fine plants. Price, \$1.00 ea. Any 6 tubers, labelled, \$5.00. All 11 varieties for \$9.00.

Complete collection of all Tuberous Begonias listed, 58 varieties, for \$18.00.

THE ORCHID FAMILY — Orchidaceae

Many of our customers tell us they have long wanted to grow an orchid. It is possible for anyone to do so.

We do not have much space here to describe them or to give culture directions. If genuinely interested, you will be pleased to send us 25c for "How To Grow Orchids." This 10 p. booklet describes many types and gives culture and potting directions. But it is too brief about Cattleyas. If Cattleyas interest you, send for our 1949 Orchid Price List. We recently found only a few hundred stored away, so you must send us 15c for it and 6c more if for air mail delivery. This gives brief but sufficient culture information. It also tells how to make a Wardian case. Listings in this are cancelled.

Cymbidiums are as easy to grow as Begonias and their culture is not greatly different. The flower spike carries up to 15 or more very lovely orchids that are much used by florists for corsages. Single bulbs sometimes flower within one year but not often. Usually a clump of 4 or more bulbs is formed before flowering and you may wait for 1 to 3 years for flowers. By that time your plants are worth \$10.00 or more. Three bulb clumps will flower in much less time.

Cymbidiums: **Giganteum**, very large plant. Many fls. brownish-yellow lined by red-brown; **Winter Cheer**, bronze and rose; **Doreen**, greenish-bronze; **Moir**, greenish bronze, barred rose; **Butterfly**, cream to tan. Price, one front bulb with foliage, each variety above, \$2.50. **Insigne**, makes very small plants that are nice in 6" or 7" pots. Pink and white fls, \$5.00; **Madeline**, larger plants, rose pink. \$5.00. **Grandiflorum**, (**Hookerianum**), large, fine green fls. \$7.50.

Assorted Cymbidiums. If you want to experiment at very little expense, accept this offer of unlabelled plants at \$2.00 for one bulb or \$5.00 for a 3 bulb clump.

Three bulb clumps of any variety for $2\frac{1}{2}$ times the cost of one bulb.

Cattleyas. We sold out the species offered last fall. But we are still too crowded in our two greenhouses. We hope to have another ready within two months. We already have enough plants to fill it and a surplus will be unprovided for. Therefore we offer a few hybrids. All will be good ones and labelled. No choice of varieties is offered.

Good blooming size **Hybrid Cattleyas.** These were repotted Dec. 1950 and will not need repotting for from one to two years. 6" pans. Our selection, \$7.50 ea. These will be shipped in pots.

Hybrid Cattleyas, out of pot. We have about 500 pots badly needing repotting into fresh osmundine. Many of these have 3 or more divisions, ready to be taken off and separately potted. We will sell divisions large enough for one 6" pan, our selection but all are good ones, for \$5.00. Some extra fine varieties our selection or you may have C. Enid if you wish, for \$7.50. They should flower in one year or less. For these "out of pot" plants you must have osmundine ready to pot at once when plants arrive. If you do not have it we can supply enough for a 6" pan for 50c.

All Cymbidiums and Cattleyas listed will be sent by express, f.o.b. Delivery April 1 or later. We now have good Osmundine for \$1.35 per lb.

Directions for potting Cattleyas. If standard pots are used fill them about $\frac{1}{3}$ full of drainage material. Pans do not need very much as they are shallow. Cut moistened osmundine into 1" pieces. Pack this very firmly around and under plant, punching it down with a potting stick which may be top end of small broom handle flattened on end like a blunt chisel. Be careful not to bruise or break living roots. Upper surface should be very firm, flat and $\frac{1}{2}$ " under rim.

Set newly potted plants in shade. Do not pot water for about 3 weeks and then very little until growth starts. But spray foliage daily letting only a little fall on osmundine. Growth should start in from 3 to 8 weeks. Pot water very little until roots start. Spraying adds enough humidity. Much moisture of osmundine delays root formation. Sun will ruin foliage when not rooted.

Miscellaneous. Anemones and Ranunculus do well in pots in a cool room. In the deep south they can be later shifted to outside garden but grow in a cool sunny place in pots in the north. Sandy soil and leaf mould. See fall cat. 1951 for more information. Tecolote Anemones and Tecolote Ranunculus. Large tubers, 5c. 50c doz. 30 for \$1.00 and \$3.00 for 100.

Maranta Kerchoveana. A very nice, easy to grow, foliage plant for pots that does best in shade. The ovate leaves have two rows of darker blotches, hence the common name, Rabbit Tracks. In orders over \$1.00, the price, loose roots, is 50c. If your order is for \$2.50 or more we will include one for 25c. One will be included with any Anthurium order, properly potted for 25c, f.o.b. express. But we will not separately pack.

Pot Marantas in 5" pots in peat or leaf mould with a little sand, in shade and keep well watered for rapid growth.

THE PINEAPPLE FAMILY — Bromeliaceae

Bromeliads include Billbergia, Cryptanthus, Aregelia, Tillandsia, Neoregelia and many more genera. We list Billbergias and only a few others that require the same culture. These include some of the most unusual and fascinating plants. Not only are the flowers in intriguing pastel colors but the floral display is made brilliant by the large vividly colored bracts that cover the scape. The leaves form a rosette and are more or less rigid. Some have brightly colored leaves and others are often mottled, striped or barred. All are desirable foliage plants.

How to Grow Billbergias. All are tropical or semitropical and thus are hardy in outdoor gardens only in the deep south. But they are all easy to grow in pots and add distinction as well as beauty to the window garden.

In pots they should have a soil of $\frac{1}{4}$ sand or sandy loam and $\frac{3}{4}$ peat or leaf mould. There should be plenty of drainage material in the pot as poor drainage may soon destroy them. Do not overwater when first planted or in winter when semi-dormant. Nor should they become dry enough to shrivel the foliage. In hot weather when they are growing well, water liberally. Keep a drink of water in their cups in the center.

In the outdoor garden they should have the same soil as recommended for pots. A few, like "nutans," will grow in nearly any soil but will do much better in the type recommended.

They need about half shade. Too much sun will burn and finally destroy the foliage. Those species and varieties having highly colored foliage do not develop their rich colors when too deeply shaded. Most of our plants are grown in a well shaded Clivia house. When well established and growing, richer colors may be brought out by giving a little more sun than we do.

Aregelia spectabilis. The bronze foliage with greyish green transverse bands on the outside make this a spectacular plant. \$3.50.

B. distachia. Foliage, reddish green with cream spots. Long flower racemes with rose pink bracts and blue flowers with green margin. Blooms early spring and again in late summer. 50c.

B. nutans. The most popular of all as it blooms in midwinter and is very lovely. Pink bracts, blue and green flowers. 50c. Three for \$1.00.

B. nutans x cryptanthus acaulis. A highly colored hybrid with bronze and green leaves. Compact growth. \$2.00.

B. Pyramidalis Hybrid. Pyramidalis x Amoena. Both parents are outstanding and this hybrid is no less. Beautiful in foliage and inflorescence. \$2.00.

B. rubro-cyanea. The most colorful in foliage, showing green, white and red combinations. Inflorescence, crimson bracts, flowers green, edged dark blue. \$1.00.

B. speciosa. Foliage green above. Under side greyish green. Bracts rose, flowers pale green tipped with blue. \$2.00.

B. Theodore L. Meade (Meade's Hybrid). Nutans x Nobile. Handsome green foliage with vivid large inflorescence. It is called an everbloomer. But this does not mean that one plant blooms continuously or even almost. However, a large group of plants will show flowers for nearly the entire year. It has no definite season but flowers from new leads as they reach the proper maturity. \$2.00.

B. thrysiflora. Mature foliage faintly barred. Summer blooming. Vivid inflorescence, scarlet bracts, blue and purple flowers. \$1.50.

B. Zebrina. Beautiful foliage, barred white. Salmon bracts, green fls. \$1.50.

Big Four Collection. Contains Nutans, Distachia, Rubro-cyanea and Zebrina. Price \$2.75, postpaid. By express, larger plants, \$2.25.

Collection, All 10 varieties listing for \$16.50. Price \$14.50, postpaid. If by express, f.o.b. we send larger plants for \$13.50.